


NOVEMBER 1955

flow

MATERIAL HANDLING

Production • Automation • Packaging • Shipping

R. J. Witherspoon 
of Midwest Research Institute
gives some tips on making
plant warehousing profitablepage 67

ALSO IN THIS ISSUE:

Handling
by Vibrationpage 70

Yard Crane: Six-in-One
Handling Unitpage 76

Integrated
Handlingpage 82

Care and Service
of Battery Chargerspage 86

The SIPMHE
Short Coursepage 110

Exposition
Reviewpage 124



Losing Profits in Plant Warehousing?page 67

Then take a tip from enlightened management

ONE OF A SERIES

You Get Many Benefits By Specifying **VICKERS** Hydraulics

Reduced Maintenance Costs

Vickers Oil Hydraulic Equipment is built to minimize maintenance . . . has an outstanding performance record. Nevertheless, Vickers recognizes that sooner or later any piece of machinery requires overhaul. So we have developed a service department of exceptional efficiency . . . one that is convenient for you by reason of full time factory-trained service men working out of our offices from coast to coast.

Shown below are several of the practical aids provided to assure you quick and economical service on Vickers Hydraulics.

VICKERS INCORPORATED

DIVISION OF SPERRY RAND CORPORATION

1538 OAKMAN BLVD. • DETROIT 32, MICH.

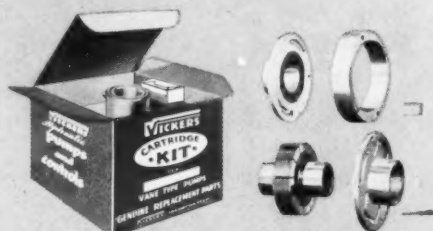
Application Engineering Offices:

ATLANTA • CHICAGO • CINCINNATI • CLEVELAND • DETROIT • HOUSTON • LOS ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW YORK AREA (Summit, N.J.) • PHILADELPHIA AREA (Media) • PITTSBURGH AREA (Mt. Lebanon) • PORTLAND, ORE. • ROCHESTER • ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA • WASHINGTON • WORCESTER
IN CANADA: Vickers-Sperry of Canada, Ltd., Toronto



SPARE PARTS RECOMMENDATIONS

Our service men will study your situation and make practical recommendations on your spare parts inventory . . . will check your inventory and provide you with printed lists of parts usually required.



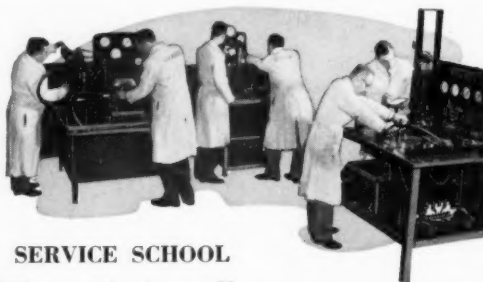
SERVICE KITS

Packaged repair kits for many Vickers products are available. These provide all needed parts for quick repair in the field and at minimum cost. In addition, these kits simplify stock problems by reducing the number of loose parts.



PREVENTIVE MAINTENANCE

Our service men will gladly set up for you an effective program of preventive maintenance on a timetable basis. This avoids costly down time and keeps maintenance costs at a minimum.



SERVICE SCHOOL

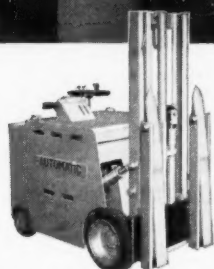
Vickers maintains a Hydraulics Training School for engineering, maintenance and service personnel of both original equipment manufacturers and their customers. For further information, please contact Product Service Department directly.

7143

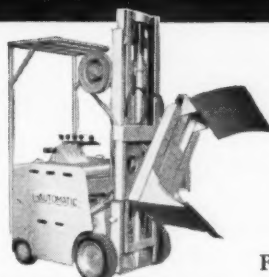
ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Circle No. 187 on Reader Service Card for more information

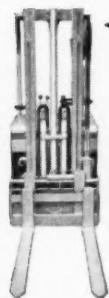
Leads The Field The First Year!



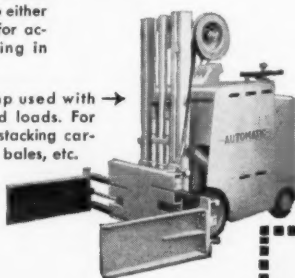
Hinged forks for convenience in adding attachments. Reduces overall length for transportation in elevators.



Paper roll clamp handles wide range of roll sizes. With rotating carriage up to 360°.



Hydraulic side-shifter moves loads to either side of truck for accurate stacking in box cars, etc.



Carton clamp used with nonpalletized loads. For moving and stacking cartons, crates, bales, etc.

Automatic® "DOCKER"

From the first—only a year ago—the DOCKER'S outstanding superiority assured it universal acceptance in industry. It was and is unrivalled in compactness, maneuverability and in such details as shortest overall length—lowest step height—fastest lift—highest grade clearance—shortest turning radius. Shown on the left are four of the special attachments which make the DOCKER the most versatile of lift trucks. There are many more. Why not find out what the DOCKER can do for you.

Available in Mono-lift or Duo-lift
1,000 to 3,000-lbs. capacities

MAIL COUPON TODAY FOR FULL DETAILS

Automatic®

**WORLD'S LARGEST EXCLUSIVE BUILDER
OF ELECTRIC-DRIVEN INDUSTRIAL TRUCKS**

Automatic 141 West 87th St., Dept. W-5
Chicago 20, Illinois

Without obligation, please send me full information on the versatile Automatic Docker.

Company Name _____

By _____ Title _____

Address _____

City _____ Zone _____ State _____

Circle No. 21 on Reader Service Card for more information

NOVEMBER, 1955

NEW! **LETOURNEAU** **ELECTRIC HOIST**

and

JIB CRANE



Built for Your

BIG LIFTS

With Instant "Inching" Control!

LeTourneau Electric Hoists give safe, absolute control of any rated load. When power is applied, you'll have instantaneous, full-torque starts from the LeTourneau Electric Motor. Cut the power and mechanical-electrical three phase brake instantly stops and holds the load. Regenerative braking controls the lowering of the load. Big loads can be moved a fraction of an inch at a time for perfect positioning. All welded steel construction; available with all standard mountings. Three tons to 30 tons and UP!

LeTourneau Jib Cranes reach out 25 feet in all directions to pick up, move, and spot your load. Boom rotates 360° on roller bearings and in bronze-lined ball socket for smooth, easy manual operating — even with capacity loads. From 6 to 15 tons capacities. Boom clearance, 14½ feet with maximum overhead clearance of 18 feet, 2 inches. With or without hoist.

You owe it to your factory to get complete information on LeTourneau Jib Cranes and Hoists — write today for Bulletin 618.



R.G. LETOURNEAU INC

LONGVIEW, TEXAS, U. S. A.

R. G. LeTourneau, Inc.
26311 South MacArthur, Longview, Texas, U. S. A.
☐ Please send me Bulletin 618 on LeTourneau Hoists
☐ Please send me information on LeTourneau Jib Cranes
☐ I am interested in a distributorship for LeTourneau Jib Cranes and Hoists

Name _____
Title _____
Company _____
Address _____
City, State _____



F105

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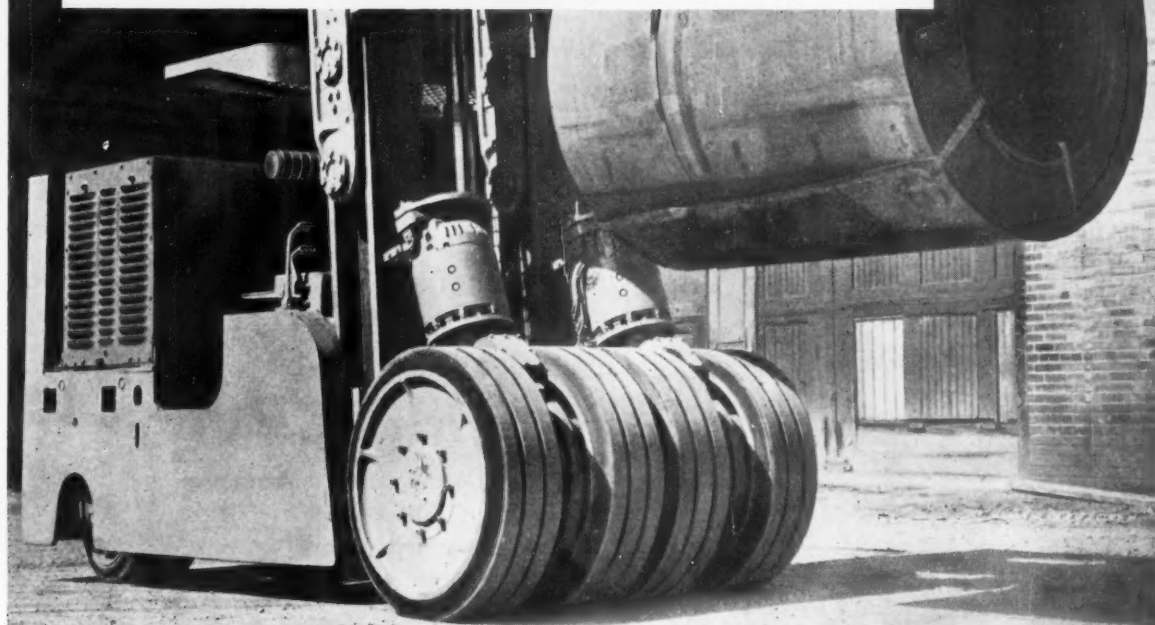
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JOHN A. LANKESTER
31 Palace St., Westminster
London S.W. 1, England
Phone VIctoria 2608

TOKYO

F. C. TAYLOR
American Trading Co. (Japan) Ltd.
No. 1 Shiba Park 7-Gochi
Minato-Ku, Tokyo

Looking for industrial tires that can really take punishment?



Get Goodyears — they're Job-Fitted!

THE TRUCK above is a good example of how Goodyear Industrial Tires can stand up under rough wear. Operating on rough outside roads under tremendous loads, these tires take a terrific beating because they are subject to more than the normal amount of cutting and chipping.

So the Goodyear dealer recommended the highly chip-resistant RED SEAL compound for longer life. For oil or grease covered floors Goodyear has an oil- and grease-resisting YELLOW SEAL compound. And that's only one way Goodyear Industrial Tires can be job-fitted to meet a particular need.

For the right kind of cushioning, stability and traction, there are four types of treads in the solid tires alone.

Today, why not ask your Goodyear dealer to recommend the tires that are not only right for your trucks—but right for your jobs. Or write:

Goodyear, Industrial Tire Sales, Akron 16, Ohio

GROOVE TREAD SOLID—
built to take heavy punishment on big trucks

SMOOTH-SOLID—
for factory, warehouse and loading platform

ALL-WEATHER TREAD—
for ramps, wet surfaces and other extra-traction conditions

**ALL-SERVICE TREAD
XTRA CUSHION—**
built with compact lug design for fast, easy rolling with maximum smoothness and stability



USE THE RIGHT TIRE FOR THE JOB — BUY AND SPECIFY

GOOD YEAR

All-Service, All-Weather, Xtra Cushion — T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

INDUSTRIAL TIRES

Circle No. 85 on Reader Service Card for more information

Look for this sign; there's a Goodyear dealer near you.



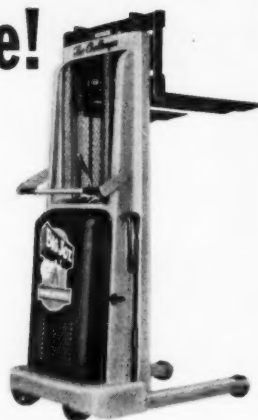
No More Manual Handling--Anywhere!

At Last-

a mass produced
quality machine at low price
for materials handling jobs up to 1,000 lbs.

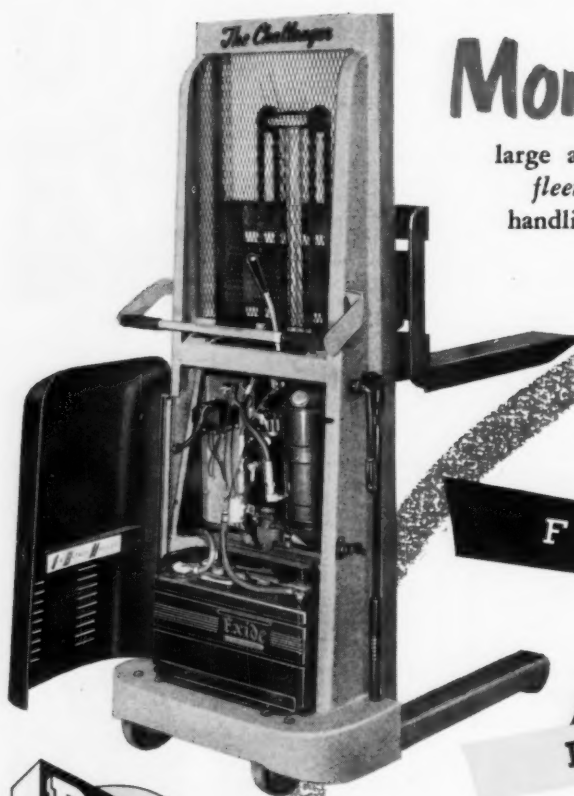
Now-

stores, shops, warehouses, post offices, depots, farms, schools, universities, hotels, hospitals, restaurants, service stations, etc. CAN AFFORD one or more battery operated hydraulic lifts.



More than Ever-

large and small plants alike can economize with
fleets of BIG JOE lifts to achieve "hydraulic
handling for every department."



COMPARE THE

Challenger

FOR QUALITY

FOR PERFORMANCE

FOR PRICE

THE CHALLENGER is another "In-Between-Handling" Tool originated and developed by BIG JOE. Every BIG JOE lift is guaranteed for quality.

\$387⁵⁰

BIG JOE

MANUFACTURING COMPANY •
900-08 Jackson Boulevard Chicago 7, Illinois

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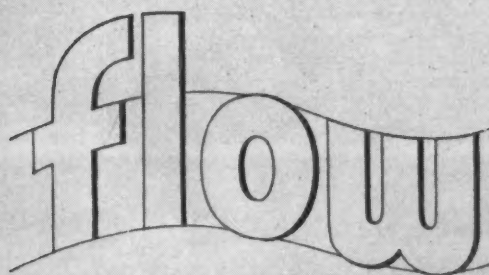
© 1955 Big Joe Mfg. Co.

FLOW

November, 1955

Vol. 11, No. 2

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ILLUSTRATED
PRECISION METAL MOLDING
APPLIED HYDRAULICS
INDUSTRY AND WELDING
WELDING ILLUSTRATED
OCCUPATIONAL HAZARDS
COMMERCIAL REFRIGERATION
AND AIR CONDITIONING

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ELPAR FORK TRUCKS



Firms in over 300 branches of industry, transportation, and commerce rely on ELPAR trucks for dependability. Whether they use one truck or a hundred, these firms have continued to buy ELPAR trucks for almost half a century. ELPAR trucks have this reputation because of Elwell-Parker's policy of "building up to quality—not down to price".

There are 8 models in the ELPAR "Air-Rights" series of fork trucks. Capacities start at 2,000 lbs. and increase to 10,000 lbs. Some of their chief advantages are described on the opposite page . . . Look beyond first cost—Why feed an expensive machine tool or press with an inferior truck? Get a truck you can depend on—buy an ELPAR fork truck.

ELPAR TRUCKS ARE BUILT TO MATCH THE FINEST MACHINERY IN YOUR PLANT

Built Up To Quality Not Down To Price



Brewery

CHEAPER, CLEANER POWER—ELPAR fork trucks operate for pennies per day because they have *electric* power. This means: No idling waste of fuel. No noise or vibration. Fewer parts to wear. No battle with exhaust fumes. No interference with radio communication.



Food Processing Plant

LESS MAINTENANCE COSTS—ELPAR design features packaged unit assemblies for fast, easy maintenance. Accessibility is basic. Preventive maintenance programs are explained by the ELPAR Service Engineer who installs each new truck and makes periodic follow-up calls.

BUILT-IN DEPENDABILITY—ELPAR trucks commonly give 15 to 20 years service. In mixed fleets of trucks, they always get the toughest jobs. Rugged alloy steels, wide use of forgings and reinforcement of critical parts prevent excessive wear or break downs that cause production bottlenecks.

ADVANCED HANDLING TECHNIQUES—For handling loads of unusual shape or nature, a score of special attachments are available on ELPAR fork trucks. Elwell-Parker engineers have unmatched experience in supplying these ingenious, money-saving answers to special handling problems.



Automobile Manufacturer



Newspaper

FREE TO YOU...



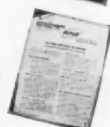
New Condensed Catalog

Fork Truck Attachments Folder



Brochure on Specially Engineered Trucks

"The Pros & Cons of Leasing"



Request literature desired by writing The Elwell-Parker Electric Company, 4290 St. Clair Avenue, Cleveland 3, Ohio

Circle No. 68 on Reader Service Card for more information

NEW ELPAR LEASE PLANS AND TIME PAYMENT PLANS

These highly flexible plans offer advantages for many uses. Ask for details.





SAVING \$5,460 PER YEAR resulted in this brick manufacturing plant when this **TENNANT** Power Sweeper was put to work picking up little "brickbats" on the run.

how to sweep up an acre of "BRICKBATS" IN 2 HOURS!

This Cleveland plant was bothered by "brickbats"—little knife-sharp brick chips that gouged lift truck tires, slowed traffic and increased handling costs.

Sweeping up the brick chips with handbrooms didn't work, because it raised dense clouds of choking dust. And while a portable vacuum sucked up the dust, it left the chips. To do both jobs would have required at least 16 manhours a day.

Today, with a **TENNANT** vacuum-equipped Power Sweeper, they pick up both "brickbats" and dust in a single operation, covering the entire area of 45,000 sq. ft. in 2 hours.

They not only save truck tires and reduce dust concentration, but save 14 manhours a day on the complete job. **WRITE TODAY** for details about the cost-saving performance of heavy duty Tennant Power Sweepers. Many types and sizes.

G. H. TENNANT CO.

2576 N. 2nd Street, Minneapolis 11, Minn.



**POWER
SWEEPERS**

SPECIALIZED MAINTENANCE EQUIPMENT

Circle No. 177 on Reader Service Card for more information



Tennant Model 24 rapidly sweeps concrete floors in huge warp mercerizing department at Coats & Clark Co. plant in Toccoa, Georgia.

LETTERS to the editors

On Sheet Separators

To FLOW:

We recently observed in a copy of your August, 1953 issue, an article on "Magnets for Handling in Metal Working".

The picture in the lower right-hand corner showing sheet steel separator of a type that "floats" sheets is very interesting.

If we are not going back too far we would appreciate information on who manufactures this equipment, so that we may write for further information.

J. W. Conley
The Dow Chemical Company
Pittsburg, California

Since we published the article on magnets several years ago, other companies began manufacturing Magnetic sheet separators, and we're forwarding a complete list.

Aluminum Equipment

To FLOW:

Kindly mail us a list of companies that manufacture aluminum pallets and skids. Would also appreciate your forwarding any data you might have on this subject.

M. S. Pollard
Cherry Valley Terminal Rd.,
Long Island, New York

Truck Attachments Wanted

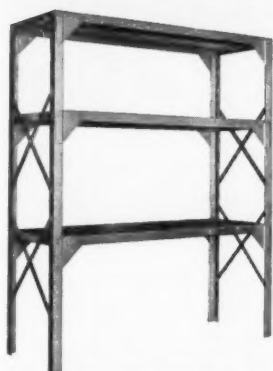
To FLOW:

I am interested in obtaining information on special attachments for fork lift trucks, specifically side shifter mechanisms and crane arms or booms that can be used simultaneously. Devices are for installations on equipment in the 14,000 to 18,000 pound class.

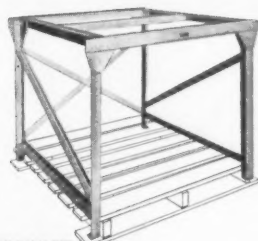
My specific requirement for the information is to develop proce-

NEW IDEAS

TO DOUBLE YOUR STORAGE CAPACITY



BULK STORAGE RACK
Long-span (6') shelving handles lengthy packages or bulk loads. No. BSR-247

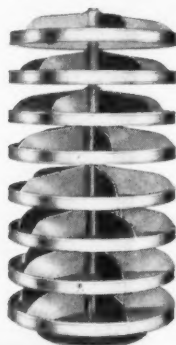


PALLET FRAME
Permits fast pallet stacking of irregular or crushable loads. No. PF-44



WAREHOUSE RACK
For storage of heaviest palletized loads—up to 4000 lbs. per shelf!
No. WR-9

Time- and space-saving equipment of advance design... permits new economy, efficiency and handling ease... for every storage operation.

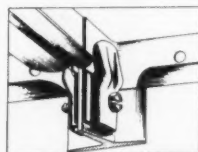
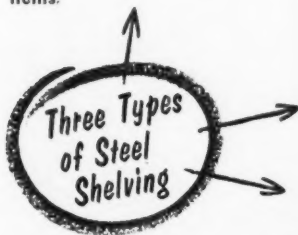


ROTABINS
For broken package lots large quantities of small items.



SERVICE CART
For moving small items quickly, safely in plant operation.
No. SC-30

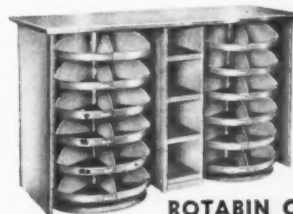
CONDUIT RACK
Permits vertical storage of conduit and tubing in lengths up to 10'.
No. ECR



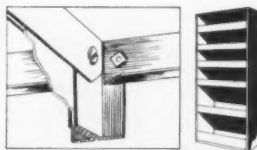
KLIP-BILT SHELVING
Installation is fast without tools... using simple clips.



ANGLE TYPE SHELVING
Offers a wide range of standard sizes, parts and accessories.



ROTABIN COUNTER
Permits finger-tip accessibility of many fast-moving small items.
No. C-286-27-S



THE FRICK-GALLAGHER MFG. CO.

WELLSTON, OHIO

Specialists in Storage Planning and Manufacturing of Storage Equipment

TELL ME MORE ABOUT STORAGE ECONOMY...
The FRICK-GALLAGHER MFG. CO.
105 So. Michigan Avenue, Wellston, Ohio

Please send me catalogs checked.

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Miscellaneous Equipment (Cat. No. 702) | • Name _____ |
| <input type="checkbox"/> Klip-Bilt Shelving (Cat. No. 703) | • Company _____ |
| <input type="checkbox"/> Rotabins (Cat. No. 110-A) | • Address _____ |
| <input type="checkbox"/> Angle Type Shelving (Cat. No. 550) | • City _____ Zone _____ State _____ |

Circle No. 78 on Reader Service Card for more information

IN EVERY INDUSTRY,

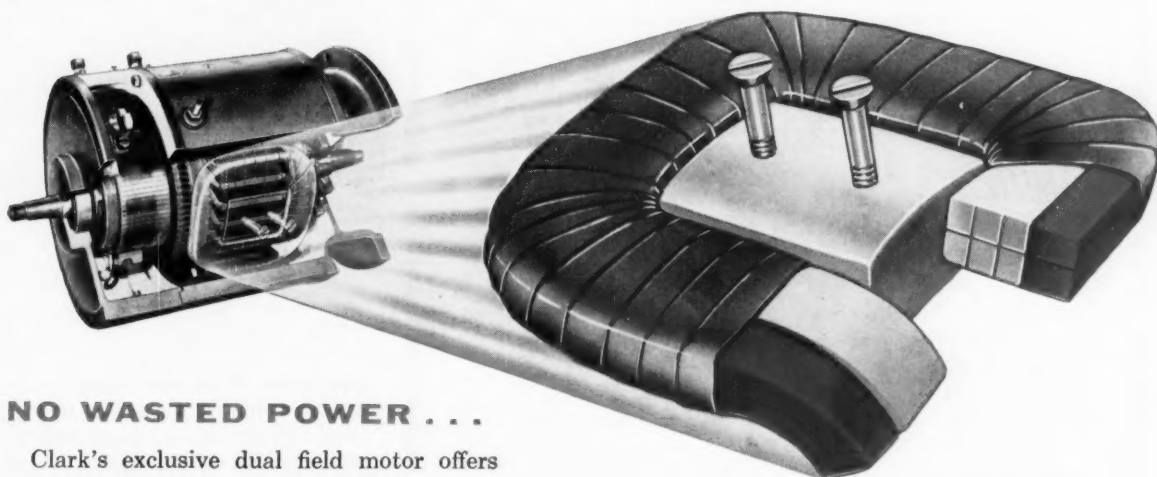


Reaching for the ceiling, efficient, fume-free Clark Electric stacks cartons of paint at White Auto Sales, Wichita Falls, Texas. In every industry, Clark Electrics work a longer cycle . . . do more work.

CLARK ELECTRICS

work a longer cycle . . . do more work !

There just isn't any other power type that can move material at a lower cost per ton-mile than a Clark Electric. Clark's field-tested gear train and exclusive dual field, high torque motor provide maximum efficiency under the most severe operating conditions.



NO WASTED POWER . . .

Clark's exclusive dual field motor offers minimum amperage draw. External resistance is utilized only in the first two points of power, thereby eliminating wasteful power losses and overheating. Result! Your battery works a longer cycle.

At 4th point of power Clark's exclusive dual field construction is achieved by eliminating half the field resistance (indicated in red).

EFFICIENT POWER-TRAIN . . .

Here's why Clark's gear train provides more power . . . more work. Final reduction is taken at the point where torque is actually being applied—at the wheel. This reduces torque load on all shafts when breaking away a heavy load, and makes the most effective use of available torque to provide more work.



Write for the booklet "Electri-Facts" showing cutaways of the power train, control circuit, hydraulic system, and other important components.

**CLARK®
EQUIPMENT**

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 13, Michigan

Circle No. 43 on Reader Service Card for more information

NOVEMBER, 1955

OPPORTUNITY!

Manufacturer's Agents WANTED

NEW management for new owners seeks manufacturer's agents and representatives for time-proven quality line. Backed by 86 pioneering years in metal fabrication, this nationally accepted complete Penco line is receiving powerful sales impetus from alert, experienced and aggressive management.

penco

OFFERS:

- Protected distribution sales policy
- Competitive prices
- Effective national sales promotion, literature and advertising
- On-time delivery assured because we are a division of our steel supply source—Alan Wood Steel Company.

WE PREFER:

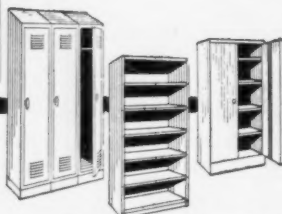
- Stocking dealers—agents or reps with inventory facilities
- Agents not handling too many lines—but with capacity to handle a substantial volume of Penco products
- Association with the following fields: Industrial; Building and new construction; School and institutional.

We urge you to investigate this opportunity today. Write, or call William W. Ogren, General Sales Manager—Howard 7-5300.

penco

METAL PRODUCTS DIVISION

ALAN WOOD STEEL COMPANY
Oregon Ave. & Swanson St.
Philadelphia 48, Penna.



penco

**STEEL LOCKERS
CABINETS • SHELVING**

Circle No. 152 on Reader Service Card for more information

LETTERS

Continued

dures for quick engine changes on our heavy transport aircraft. Details on specifications are therefore essential to me. Any assistance you can offer will be greatly appreciated.

R. N. Pedersen
Major, USAF
Military Air Transport Service
McGuire AF Base, New Jersey

The names of manufacturers have been forwarded.

"Make-your-own" Cartons

To FLOW:

Some time ago you published an article about the convenience of using one's own equipment to make relatively small quantities of certain sizes of cartons.

I would appreciate it very much if you could send me any pamphlets, material and addresses of companies who manufacture such equipment. We are interested in studying this matter, to see if it would be convenient for our business to install such equipment.

William J. Alvino
Oxford University Press, Inc.
New York, N. Y.

The article referred to is "Home-Made Box Making System" which appeared in the February, 1955 issue of FLOW, page 128.

King Size Containers

To FLOW:

We are very much interested in obtaining further information as to cost, size and type and source of the king size containers used by the Bakelite Company and mentioned on page 112 of your July, 1955 issue.

We would appreciate any information you can provide.

N. N. Sacks
Deere & Company
Moline, Illinois

U. S. Rubber Company, Container Products Division, manufactures the "king size container".



She doesn't spill a drop...
she's got

RHYTHM!

And that's how pneumatic-tired Hyster® lift trucks too, carry big loads *without spilling!*

Have you ever noticed that when a waitress carries her tray she gives it a rhythmic movement which makes the contents *stay put?*

In much the same way, pneumatic-tired Hyster trucks carry loads rhythmically, without disturbing the load. Another benefit is that, upon hitting an obstruction or depression, pneumatic tires absorb most of the "road shock", cushioning the load from the floor (and vice versa).

Hyster pioneered the use of pneumatic tires for lift trucks. Today you get easier riding, less floor wear, better traction, better ramp and rough ground performance, easier steering, less down-time for changing tires...all adding up to faster, more efficient, more economical lift truck operation. And pneumatic tires are ideal for indoor-outdoor service!

Many Hyster truck models also are available with solid cushion tires—for these, too, have their scope of application. Whatever tires are best suited for your job, you can depend on your Hyster Dealer to help you make the right selection from Hyster's complete line of industrial trucks (capacity 1,000-30,000 lbs). Why not call him today? You will find him listed under "Trucks-Industrial" in the yellow pages of your telephone directory.



HYSTER COMPANY



2931 N. E. Clackamas Street, Portland 8, Oregon
1031 Myers Street, Danville, Illinois
Hyster N.V., Nijmegen, The Netherlands

Four Factories:

Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands

Circle No. 97 on Reader Service Card for more information

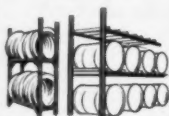
YOU
CAN
STACK
ANYTHING
ON.. **E
M
I** RACKS



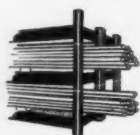
PORTABLE STOCK RACKS



PALLET RACKS



COIL, REEL
& DRUM RACKS



BAR STOCK RACKS



DOLLY & TOWING RACKS



COLLAPSIBLE
& STACKING BOXES



*be a good
"warehouse-keeper"
keep your materials
well stacked!*

Equipment Manufacturing storage racks that stack are fabricated of strong, square tubular steel and are adjustable to fit any space or unit load in your plant or warehouse. Special racks designed to your specifications. Field Engineering Service on any installation. Before you decide on a new warehouse, additional storage space or the purchase of stacking equipment, write for our catalog. You save money, space and time with E. M. I. racks.

E. M. I. Pallet Racks increase efficiency in storage and handling at the Cleveland Warehouse of Standard Oil Company of Ohio.



Write for Catalog...

**EQUIPMENT
MFG. INC.**

21552 HOOVER ROAD • DETROIT 5, MICHIGAN

MATERIALS HANDLING EQUIPMENT

STACKING RACKS FOR INDUSTRY

Circle No. 70 on Reader Service Card for more information

**news from the
SALES FIELD**



L. R. Oswald



E. L. Krauss

Edison Storage Battery Division of Thomas A. Edison, Incorporated, has announced the appointment of **Larry R. Oswald** as Chicago district manager. He succeeds **Harvey A. Drew** who retired October 1 after completing 40 years of service with the company. Also announced was the establishment of a district office in Atlanta. The new office is headed by **E. L. Krauss**, who is assisted by **Donald G. Van Houten** and **S. E. Womeldorph**, field service engineers.

Hohl Machine & Conveyor Company is currently celebrating its 10th anniversary and fourth expansion move. For the first time since its organization by President **Frank J. Hohl**, all the firm's facilities are consolidated under one roof at 1580 Niagara Street, Buffalo, N. Y. In addition to representing some 40 manufacturers, Hohl also manufactures a line of complex engineered equipment.

A new sales and service branch has been opened in San Francisco by **Yale & Towne Manufacturing Co.** **H. M. Stiles** has been named branch manager of the new outlet, located at 563 Second Street. **Harry Rose** is the regional hoist sales

Brand New!

It's the new

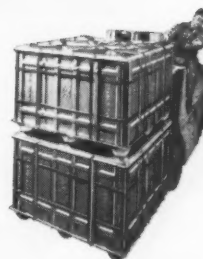
ACKERMANN BAND-BOX

PATENT APPLIED FOR
SHIPPING CONTAINER

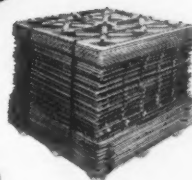
Assembles Easily —
Bottom, sides and top
dovetail. Parts band
together in minutes.



Closes Compactly —
All parts securely
band together to
give utmost protec-
tion to contents.



Transports Easily —
Loads stack securely.
Bottom is an indi-
vidual pallet, sup-
ports over 30 tons.



Fully Nestable and
Re-Usable — Empty
boxes "knock down."
Parts for 12 boxes
occupy space of 1
assembled box.

All-steel, fully nestable, re-usable, self-palletizing, tierable
— it's the practical solution to your inter-plant shipping and storage problems!

Now . . . a shipping container combining all the
advantages industry has long demanded . . . yours
exclusively in the new Ackermann BAND-BOX!

Light weight to cut shipping costs, plus all the
rugged dependability of solid steel. Fully nestable
so return trips take little space, plus interlocking

parts to set-up in seconds. Self-palletizing to
make fork truck handling easier, plus the ability
to stack ceiling-high without toppling.

All this is *yours* with Ackermann's new BAND-BOX!
Get full details today!
Write, wire or call!

ACKERMANN MANUFACTURING COMPANY
WHEELING, WEST VIRGINIA



Circle No. 1 on Reader Service Card for more information

NOVEMBER, 1955

15

CM Lodestar®



**ENTIRELY NEW
differently NEW**

FEATURING:

- Push Button Control
- Self-Adjusting Heavy Duty Brake
- Sealed-in Lifetime Lubrication
- Overload Protection
- Full Enclosed Components
- Lowest Headroom
- "CM-Alloy" Flexible Link Chain

CAPACITIES: from 1/4 to 1 ton.
Single and 3 phase. 1/2 ton model weighs only 51 pounds.

**\$149.50
and up**

Built to serve you without costly maintenance



Lodestar is the first truly "heavy duty" version of the small electric hoist. The CM Lodestar is designed to operate without costly maintenance or interruptions in your work schedules. The initial cost is practically your only cost with a Lodestar... an extremely low cost indeed!

WRITE US or call your CM distributor for literature, prices and quick delivery from stock.

CHISHOLM-MOORE HOIST DIVISION
Columbus McKinnon Chain Corporation
Tonawanda, New York

REGIONAL OFFICES: NEW YORK • CHICAGO • CLEVELAND
In Canada: McKinnon Columbus Chain Limited, St. Catharines, Ontario

Circle No. 42 on Reader Service Card for more information



SALES FIELD

Continued

manager. A complete stock of equipment and parts will be maintained at the new facility which is staffed by factory trained personnel.

Sales manager of the newly created **Truck Division of The Howe Scale Company, Inc.** is **Philip C. Cook**. Formerly sales engineer with Lewis-Shepard Products, Inc., Cook has been associated with the **Philip C. Cook** material handling industry for more than 15 years. His appointment coincides with a new program calling for truck redesign and wider activity in distribution and service.



Hyster Company has enlarged the sales and service territory of **Field Machinery, Inc.**, Cambridge, Mass., to include the entire states of Maine and New Hampshire, as well as Rhode Island, Vermont and eastern Massachusetts.

A western regional sales engineering office has been opened by **Fielden Instrument Division, Robertshaw-Fulton Controls Company**. **Charles J. O'Lone** heads the new facility which is located at 3101 Imperial Highway, Lynwood, California.

Thomas M. Creel will represent **Cambridge Wire Cloth Company** as a sales engineer in the southeastern area, and will headquarter at 333 Candler Building, Atlanta.

Exclusive representatives recently appointed by **Thomas Truck & Caster Co.** include: **John R. Davis**, Detroit; **J. L.**



HEY!

come on

and take a good look
at this

TIGER BRAND WIRE ROPE



Note the size of wires—large enough to provide plenty of resistance to abrasion yet not so large as to cause a stiff, unwieldy rope. Note the full, firm fiber core—it provides the support necessary for resistance to distortion of rope structure. Note the internal and external lubrication—it helps to prevent corrosion and wear.

These construction features were specially selected for this rope to suit it to rugged hoisting jobs in the construction and mining industries, in factories and mills, in logging operations, and aboard ship. For specific recommendations on the use of this and scores of other carefully designed Tiger Brand Ropes, write for a copy of our free booklet, "The Right Rope for the Job." You will find that there is a good Tiger Brand Rope for every wire rope job. Write for your copy today.

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed



UNITED STATES STEEL

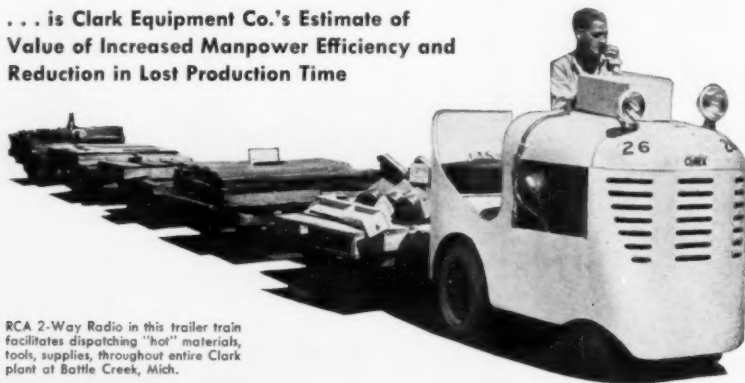
NOVEMBER, 1955

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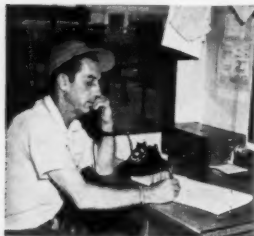
17

\$41,400 Annual Savings with RCA 2-Way Radio

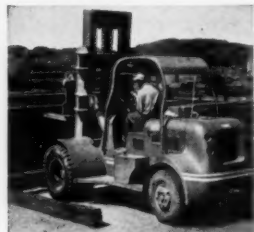
... is Clark Equipment Co.'s Estimate of
Value of Increased Manpower Efficiency and
Reduction in Lost Production Time



RCA 2-Way Radio in this trailer train facilitates dispatching "hot" materials, tools, supplies, throughout entire Clark plant at Battle Creek, Mich.



Dispatcher receives call for service in Manufacturing division and gets truck to request point without delay.



Truck deliveries for Assembly division are in response to direct request from foreman.

Two systems are in use: In servicing the Assembly division, *direct radio contact* is provided between division supervisor and truckers—thus eliminating ten to thirty minutes of paper work and up to four individuals to execute it. Tangible savings have been gained to the extent of approximately \$24,000 per year. Another \$2,400 in intangible savings is estimated through reducing lost production hours that were caused by waiting for material deliveries.

In the Manufacturing division, more efficient use of both equipment and personnel is being made through radio-dispatched trucks. This has solved the problem of transportation shortages due to fluctuation in peak loads, by permitting close cooperation with other operations, resulting in a saving here of approximately \$15,000 a year.

RCA 2-Way Radio is used in a total of nine fork-lift trucks and one towing tractor, with four station units over a 1/2-mile plant radius.

Have you investigated the advantages of RCA 2-Way Radio for your plant? RCA famous-quality mobile units fit almost any convenient location, require a minimum of maintenance, permit quick servicing when needed. The RCA Service Company provides nation-wide service facilities if desired. Why not get complete information now?



RADIO CORPORATION of AMERICA
COMMUNICATIONS EQUIPMENT CAMDEN, N. J.

Radio Corporation of America
Dept. Y-131, Building 15-1, Camden, N. J.
In Canada: RCA VICTOR Company Limited, Montreal

- ☐ Please send information on RCA 2-Way Radio For Materials Handling.
☐ Have an RCA representative get in touch with me.

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Circle No. 156 on Reader Service Card for more information

SALES FIELD

Continued

Neale Co., Kingston, Pa.; The J. J. McArdle Company, Madison, Conn.; Pacific Northwest Agents, Inc., Portland and Seattle trading areas; Warehouse Equipment & Supply Co., San Francisco; and The Colson-Merriam Company to handle Government transactions in Washington, D. C.

Former sales promotion manager of DeLuxe Metal Furniture Company, Richard Frieberthaus, has been named general sales manager of the company. This Frieberthaus is a new position with the Warren, Pennsylvania, firm, a division of Royal Metal Manufacturing Company.



Two top executive posts have been filled by Stokes & Smith Company, subsidiary of Food Machinery & Chemical Corporation. J. Russell Sonnenborn has been named general sales manager and John S. Stokes, Jr. has been appointed customer service manager. Both men have a broad knowledge of industrial packaging.

Lift Trucks Incorporated has appointed John A. Holan, St. Louis, sales and service representative for St. Louis, Missouri and surrounding territory.

Among recently appointed exclusive representatives of Lewis-Shepard Products, Inc. is Edward D. Bement, Jr., 1076 So. Kingshighway, St. Louis. Bement has had wide experience in the material handling field and formerly was associated with Yale & Towne Mfg. Co. and General Electric S.A.



**ALLIS-
CHALMERS**
(BUDA)

**SUPER-SAFE FTDX SAFETY DIESEL!
ONLY INTERNAL COMBUSTION
FORK LIFT TRUCK ACCEPTED BY
MILL MUTUAL FIRE PREVENTION BUREAU!**



**Get all
the facts free**

New folder tells all the facts quickly—
gives all information on how your
plant can plan a new safety record!
Write today!

Big news for the grain and milling industries and for all plants interested in super-safety from fire hazards! After many months of testing, Buda is the *only* internal combustion engine industrial truck accepted by Mill Mutual Fire Prevention Bureau, Chicago. From manually operated foot going to static conductive tires and non-spark forks, this new fork lift truck series is designed for super-safe operation. Starting with Diesel's lower exhaust temperatures, cooling and elimination of hot spots is accomplished. Water-cooled manifold and water muffler reduce metal surface temperatures, quench exhaust sparks, reduce exhaust temperatures. With Buda Diesel power, maintenance time is reduced, backfiring is impossible, and compression principle of ignition provides automatic safety signal. Super-safe FTDX is either perfectly safe — or it won't operate!

Buda Division, Harvey, Illinois



ALLIS-CHALMERS



FORK LIFT TRUCKS



INDUSTRIAL TRACTORS



PLATFORM TRUCKS

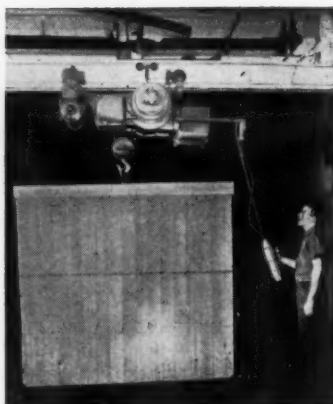
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NOVEMBER, 1955

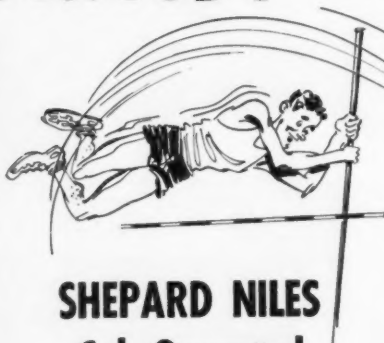
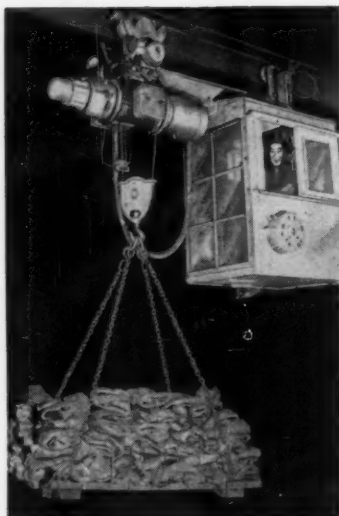


SHEPARD NILES Floor-Operated Hoist

Operator mainly occupied with other duties. Hoist used for fast, efficient handling of relatively short hauls.



WHICH HOIST is RIGHT FOR YOUR JOB?

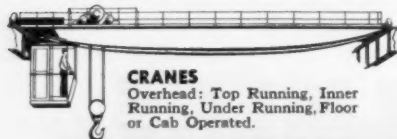


SHEPARD NILES Cab-Operated Hoist

Operator in cab moves loads along at high speeds . . . occupies best vantage point for spotting or stacking materials.

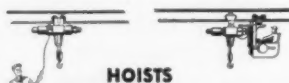
Let the Shepard Niles representative in your area guide you in your choice. He specializes in through-the-air handling . . . can help you select the hoist that best fits your job. Write Shepard Niles today for latest bulletins describing both types of hoists . . . and ask to have a representative stop by your office.

America's Most Complete Line of Cranes and Hoists since 1903



CRANES

Overhead: Top Running, Inner Running, Under Running, Floor or Cab Operated.



HOISTS

Operated from Cab, Floor or Pulpit.

SHEPARD NILES

CRANE AND HOIST CORPORATION

2764 Schuyler Ave., Montour Falls, N. Y.

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SALES FIELD

Continued

Inc., Machinery Division. Other appointments include **Nelson L. Hammell**, 3730 Tonnell Ave., North Bergen, N. J., and **George Mauraides**, 435 West Bancroft Street, Toledo, Ohio.

J. Preston Wrenn, president of **Wrenn Brothers**, material handling distributors in the Southeast, announces the opening of a new department for special engineering. **Tom Bromeling**, former sales manager of The Colson Corp., heads the new department in Charlotte, N. C. Bromeling's engineering background of 15 years includes the fields of design, production and sales. Wrenn maintains branch offices in Atlanta, Richmond, Greenville and Jacksonville.

W. J. McCune has been named general manager of sales at **Sharon Steel Corporation**, succeeding **J. J. Kraus** who will devote more time to his duties as assistant vice president.

Newly appointed sales representative of **Nutting Truck and Caster Company** is **A. C. Andrews Company**, 2109 Main Street, Dallas, Texas.

Harnischfeger Corporation has appointed **L. G. Danielson** as district manager, Industrial Division, in the Milwaukee territory. A veteran of 20 years with the company, he previously served as a sales engineer.

Clark Equipment Company has named **B. E. Phillips** as assistant sales manager of the Industrial Truck Division. Phillips has served the company for seven years, most recently as district sales manager with headquarters in New York. Announced by the Construction Machinery Division

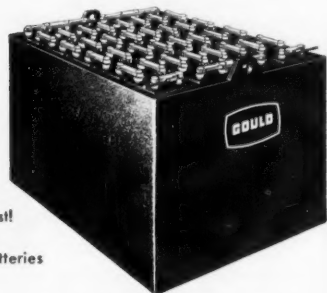


**PLENTY OF
ENGINEERING
KNOW-HOW
GOES INTO GOULD
RESEARCH BUILT BATTERIES!**

On the drawing boards in the Gould engineering department, theory is made practical.

Drawings and specification charts indicate the right plate size,
battery case size, the eventual battery capacity, how grids should be cast,
how active material should be mixed and how the battery should be constructed—
to make sure you get the right battery for the right job!

One more reason why you get better batteries first from Gould!



America's Finest!
GOULD
Industrial Truck Batteries

"BETTER BATTERIES THROUGH RESEARCH"

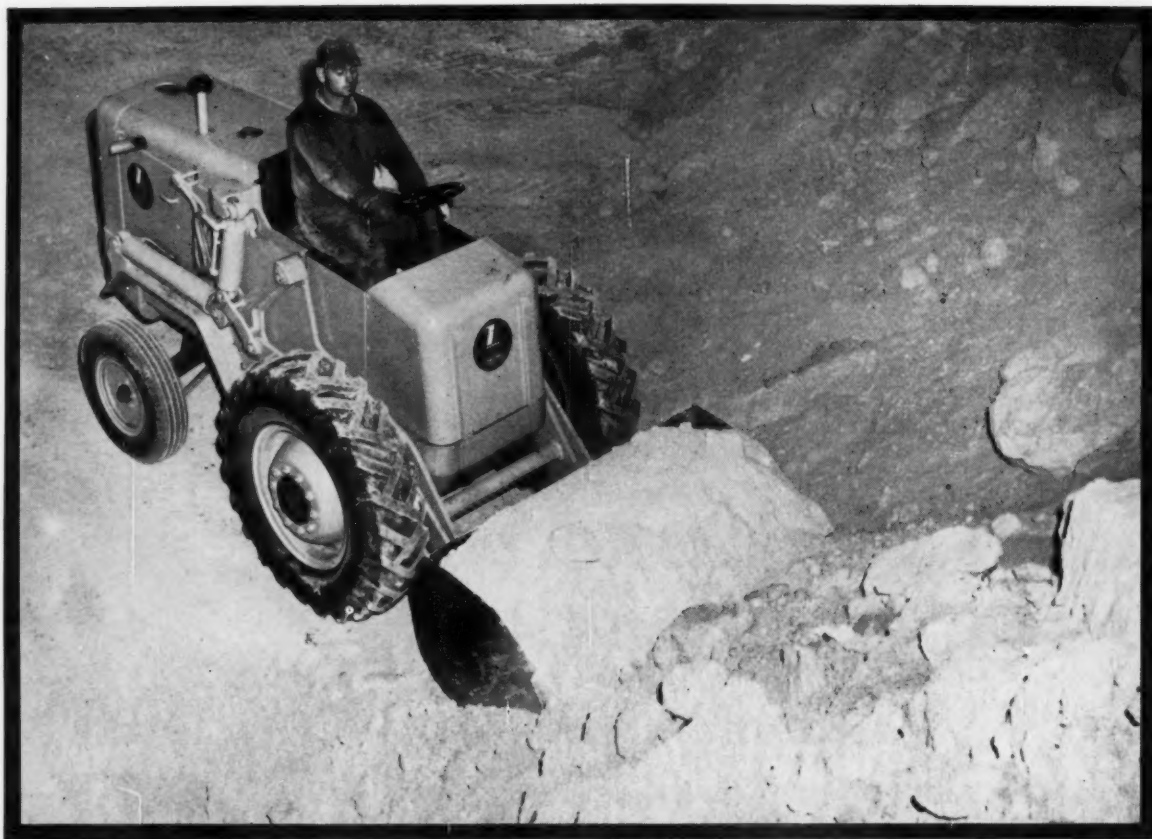
Always Use Gould-National Automobile and Truck Batteries

**GOULD
Batteries**

GOULD-NATIONAL BATTERIES, INC.
TRENTON 7, N. J.

©1955 Gould-National Batteries, Inc.

Circle No. 151 on Reader Service Card for more information



New model HAH — digs and carries up to 1 cu. yd. or 3,000 lbs. at a time.

BOTH NEW and

DIGGING POWER

3,000 lbs. and 4,500 lbs. of tractive thrust, plus powerful upward rotation of bucket by twin hydraulic rams, develop tremendous digging power.



40° BUCKET TIP-BACK

Bucket tips back 40° on its hinges before it is even lifted — to get heaped bucket-loads quickly and prevent loss due to spillage.



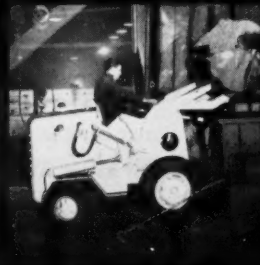
CARRYING CAPACITY

40° tip-back also brings loaded bucket back close to machine and low for safe, fast transport.



SAFETY-STABILITY

Bucket arms and other moving parts are mounted and positioned low where they are no hazard to operator's limbs.



Circle No. 94 on Reader Service Card for more information



New model HA — digs and carries up to 18 cu. ft. or 2,000 lbs. at a time.

More Productive

Hough, the pioneer and leader in the tractor-shovel industry, is pleased to present these all-new "PAYLOADER" units. Both have front-wheel-drive and rear-wheel-steer — especially designed for stockpile work and fast material moving in close quarters. They give you a choice of sizes to best fit your requirements — they're the finest of their type in

Hough history — they're both way ahead of the field in design, performance and all-round value.

Your Hough Distributor is eager to show what these new machines can do for you. The Frank G. Hough Co., 703 Sunnyside Ave., Libertyville, Ill.

OTHER FEATURES of these outstanding new models include: torque converter drive; full-reversing transmissions; closed, pressure-controlled hydraulic system; large hydraulic brakes; accumulator in hydraulic system that prevents pressure shocks and facilitates bucket control.



PAYLOADER®

MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY



THE FRANK G. HOUGH CO.
731 Sunnyside Ave., Libertyville, Ill.

Send data on "PAYLOADER" units
Model HA ☐ Model HAH ☐ larger sizes ☐

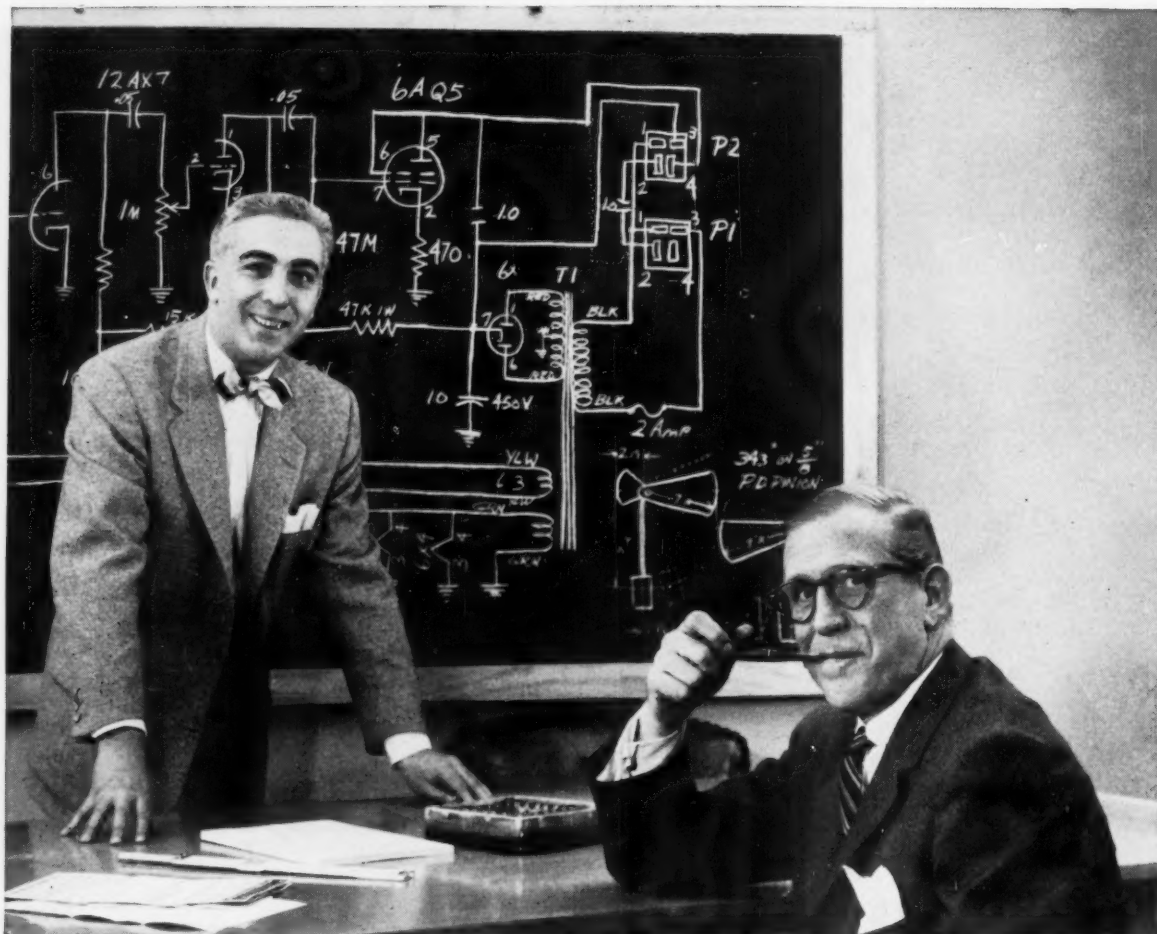
Name.....

Title.....

Firm.....

Street.....

City..... State.....



They wanted to change pounds to volts

After a hundred and twenty-five years of scale engineering it was easy!

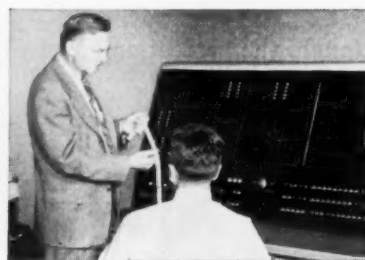
Fairbanks-Morse Scale Engineers sought and found the practical way to adapt modern electronic principles to one of man's oldest commercial activities—the accurate weighing of items of trade.

The result is the new Fairbanks-Morse Electronic Scale that brings weighing information right to your desk from any spot that is too remote, too hot or too dangerous.

Only from Fairbanks-Morse can you get such originality and soundness of new design that assures outstanding performance. When next you need a scale ... or a pump ... an electric motor ... or a diesel engine, look for the famous F-M Seal. For 125 years it has stood for the finest in practical engineering. Fairbanks, Morse & Co., Chicago 5, Ill.



The Secret is this desk-sized electronic instrument that is direct reading; direct indicating—no manual switching or mental additions. Memory circuit prevents printing unless true balance exists.



The Result is that indications can be brought from remote locations to a central spot and integrated into other automatic electronic operations for faster, more complete utilization of weighing information.



FAIRBANKS-MORSE

a name worth remembering when you want the best

SCALES • PUMPS • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MOWERS • MAGNETOS
Circle No. 74 on Reader Service Card for more information

SALES FIELD

Continued

was the distributor appointment of **Avery Tractor Inc.**, U. S. 20, West Lebanon, N. Y. Avery will handle Michigan products in the entire state of Vermont from a newly established office at Montpelier.

Wisconsin representative of **Hinde & Dauch** is **Jack H. Oliver**, who will cover the western section of the state from offices in Mauston. He joined the company in 1923 and worked as a package engineer in the Chicago office until 1945 when he entered private business.

Appointed southeastern Texas distributor of **The Heil Company** is **Irvin F. Nelis Associates** of Houston.

New Georgia distributor for **The Buda Division, Allis-Chalmers Manufacturing Company**, is **Power Service Company**, 297 Hunnicutt Street, N.W., Atlanta. The company will handle the manufacturer's complete line of material handling equipment.

H. M. Giefer has joined the sales staff of **Union Steel Products Company**, Wire Products Division. He is headquartered at 2651 University Avenue, St. Paul, and will cover the states of Minnesota and Wisconsin with the exception of the city of Milwaukee.

Promotion of **Joe W. Morgan** to sales manager of **Hyster Company's** eastern Tractor Equipment Division has been announced. Since 1952, Morgan has been assistant sales manager of the company's eastern Industrial Truck Division in Danville, Ill. He will now headquarter in Peoria.



Model 606

NEW KIND OF POWER SWEEPER

*Engineered to outlast—
powered to outperform all others*



"Filter-Vac Dust Control"—NO DUST BAG TO EMPTY! Fan deposits dust in main hopper automatically. (Pat. Pending)



Reach-Easy Controls: No loss of sweeping time—all levers can be operated by the driver while he is seated.



Power Dumping, hydraulically operated while driver is seated.



Vacuum Attachment available for cleaning shelves, bins, equipment.



Extra Power. Model 606 has about twice the horsepower of any other sweeper.

Forget old ideas about power sweepers! The new Wayne is designed with engineering principles never before used in a power sweeper except for heavy duty street sweepers also built by Wayne. This new Wayne really sweeps over 100,000 square feet per hour. And it sweeps better!

New exclusive Wayne features include: More functional design, larger hopper capacity, welded all-steel body, safety shielding of moving parts, automotive type steering, and Power-Flex lift action—features that will prove their plus value instantly on demonstration in your plant! 4 sizes for every sweeping need.

**THERE'S A SIZE SWEEPER FOR EVERY
SWEEPING JOB. LP GAS POWERED
ENGINES AVAILABLE FOR ALL MODELS**

WAYNE

Write for literature or on-the-job demonstration



WAYNE MANUFACTURING CO.

1214 E. Lexington St. • Pomona, Calif.

☐ Please send me literature regarding new Wayne Power Sweepers.

☐ Please arrange for demonstration.

Name

Title

Company

Address

City Zone State

World's Largest Producer of Power Sweepers for Cities and Industry
Circle No. 192 on Reader Service Card for more information

NEWS VIEWS TRENDS

BORG-WARNER PLANS MULTI-MILLION \$ RESEARCH CENTER

Plans for the construction of a multi-million-dollar Borg-Warner Research Center have been announced by Roy C. Ingersoll, president of Borg-Warner Corporation. Conceived as one of the most highly diversified establishments for technological advancement in the country, the Center will be located on a 36½-acre site in Des Plaines, Illinois. The new laboratory will contain facilities for metallurgical, electronic, electrical, chemical, acoustical, hydraulic, applied mechanical, physics and nuclear research. It will house a complete machine and model shop, a modern computation center and a large technical reference library. About 100 scientists and engineers will be engaged at the start of the operation. Building of the initial unit is expected to be completed next Spring.

7TH PLANT SHOW

Nearly 400 exhibitors are anticipated for the 7th Plant Maintenance & Engineering Show to be held in Philadelphia, January 23-26. Now in its seventh year, the show annually attracts more than 20,000 industrial executives to see the thousands of different products and services demonstrated. The 7th Plant Maintenance & Engineering Conference will be held concurrently with the Show.

NEW PORTER OFFICE

H. K. Porter Company, Inc. has new offices in New York City located at 300 Park Avenue. The change became effective September 30.

MILITARY SPECS GET MANUFACTURERS' OK

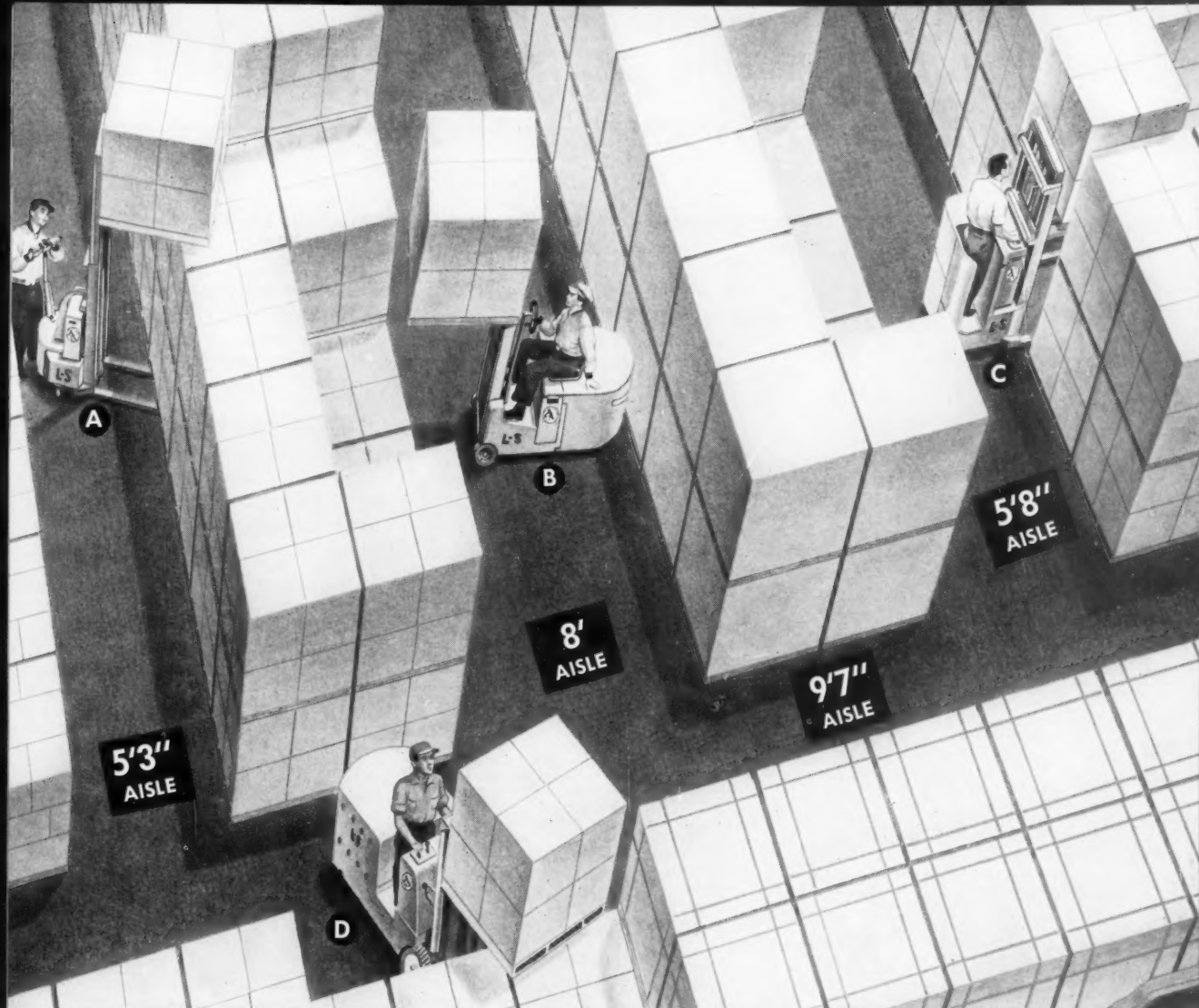
Recommendations on military specifications presented by seven task groups were accepted in general by the Industrial Power Truck Manufacturers Industry Advisory Committee, which met in Washington, September 13-14, with the Business and Defense Services Administration and representatives of the Department of Defense. The task group reports approved by the Industry Advisory Committee covered electric and gasoline fork trucks, straddle trucks and industrial tractors. Future meetings will cover proposed specifications of side loading gasoline fork trucks, wheeled tractors, crane trucks and fixed platform trucks.

UNION METAL EXPANDING

An expansion program involving buildings and equipment representing an expenditure of more than \$1,000,000 has been planned by The Union Metal Manufacturing Company. The new building will add 51,400 square feet of manufacturing floor space to the company's present facilities, while new machinery will provide a 100 percent increase in steel tube manufacturing capacity. The entire program is expected to be completed by mid-1956.

DURABLE MAT MOVES

Durable Mat Company has relocated its west coast plant in Santa Clara, California, after operating in Seattle, Washington, for 32 years. The new plant has 6000 square feet of floor space and is located at 755 Kifer Road. According to Plant Manager L. J. Burton, the move was made in order to offer better service in the 11 Mountain and Pacific Coast states.



"Aisle-matched" to reduce idle space

THE ARTIST'S DRAWING above shows that *whatever the width of your warehouse aisles there's a Lewis-Shepard Master Truck to match*. Shown are four L-S Master Trucks right-angle stacking the same 2000 lb., 40" long load in various size aisles. *You* decide the most practical aisle width . . . then select the Master Truck that matches *your* requirements.

Remember, Lewis-Shepard offers you *every type of truck made* — from lightweight two-wheelers to huge fork lifts . . . the *only* complete line of materials handling trucks on the market. And, because your local L-S Representative has this *complete* line, he's in a better position to advise you . . . he's not biased in favor of one type truck or design.

Dependable L-S Master Trucks are ordered and reordered by "blue-chip" companies. Recent reorders include:

Electrical Goods Mfr.	105 L-S in use — reordered 7
Rubber Mfr.	13 L-S in use — reordered 2
Spark Plug Mfr.	20 L-S in use — reordered 1
Aluminum Mfr.	14 L-S in use — reordered 4

Illustrated are: (A) JackStacker, 4000 lb. cap. electric "walkie"; (B) Model "J", 2000 lb. cap. riding type at $\frac{1}{2}$ the usual cost; (C) Model "M", 3000 lb. cap., most compact of all riding types; (D) Model "E", 2000 lb. cap., fastest of all electrics.

Write for an L-S "Space Wheel" . . .
tells you aisles required for L-S Trucks and probable savings. Use the coupon.



LEWIS-SHEPARD®

1311 Walnut St., Watertown 72, Mass.

- Please send
- ☐ L-S Space Wheel
 - ☐ (A) L-S Master JackStacker Catalog #34
 - ☐ (B) L-S SpaceMaster Model "J" Catalog #33
 - ☐ (C) L-S SpaceMaster Model "M" Catalog #35
 - ☐ (D) L-S SpaceMaster Model "E" Catalog #32

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Company _____
Address _____

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**HEWITT-ROBINS
BUYS DRIVE PLANT**

Hewitt-Robins Incorporated has purchased the business, manufacturing facilities and assets of W. A. Jones Foundry and Machine Company, Chicago. According to Thomas Robins, Jr., president of Hewitt-Robins, the acquisition will enhance his company's position in the belt conveyor field, where drive equipment such as that made by Jones is an essential component. The Jones plant contains 165,000 square feet of floor space which Robins said will be used for expansion as needed. The company will be operated as the Jones Machinery Division.

**WHEELABRATOR
NAME CHANGE**

The corporate name of American Wheelabrator & Equipment Corp., Mishawaka, Indiana, has been changed to Wheelabrator Corporation. According to company officials, the move does not involve any alteration in the ownership, management, or operation of the company.

**GERRARD'S
NEW HOME**

United States Steel Corporation's Gerrard Steel Strapping Division has moved into new and larger warehouse facilities at 360B Shaw Road, South San Francisco. Branch manager of the new facility is W. A. Howe.

NEW PALLET FIRM

Twin Lakes Pallet Company, Harrison, Arkansas, was formed on September 1. The firm will be engaged in the manufacture of wooden crates, pallets and boxes, and will specialize in difficult or unusually constructed items. Thos. H. Harrison heads the organization.

**FIRST WESTERN
HANDLING SHOW**

A Western Material Handling Conference and Equipment Show is planned for May 9-11, 1956, in Los Angeles, California. Sponsor of the event, first of its kind to be held west of the Mississippi, is the Los Angeles Chapter of the American Material Handling Society. Major theme of the show will be the "know-how of material handling", with both the conference sessions and exhibitors emphasizing solutions to the varied material handling problems of the West.

VULCAN EXPANDING

Vulcan Containers Inc., a new organization formed by consolidation of Vulcan Stamping and Manufacturing and Vulcan Tin Can Company has announced plans for expansion of its storage and warehousing facilities. The firm is located in Bellwood, Illinois.

**COLSON COMPLETES
NEW FACTORY**

The Colson Corporation has opened a new factory in Elyria, Ohio, designed with removable walls on two sides. The plant, 400 feet long by 100 feet wide, is the first of six identical adjoining plants planned by the company. It has been designed so that the 400 foot long side walls can be removed when adjoining sections are constructed. This will afford completely open bays and parts of the removed walls will be used as the outside walls of the new structures. Ultimately, the plant dimensions will be 600 feet by 400 feet, or a total of 240,000 square feet. Robert A. Pritzker, president, said the company hopes to complete the entire project in the next few years.

POWELL *flow-matic** Slashes Handling Costs for Leading Automotive Parts Manufacturer

Executives of the Eaton Manufacturing Company's Saginaw, Mich., plant became concerned over the costs of handling materials during manufacture. They decided a thorough study of modern equipment currently available was in order. Their decision: Flow-matic* by Powell—a highly flexible system of automatic feed hoppers and boxes that enables users the greatest cost reductions on a plant-wide variety of operations.

BEFORE

Parts were handled in small quantities in tote pans. This meant the machine operator was constantly lifting and carrying. Weights had to be kept light to prevent injury to the operator. The pans were then stacked on pallets requiring lift truck handling. Warehousing and inventory were slow, tedious jobs.



AFTER

Same lift trucks were utilized. Instead of the dozens of small pans, each individual operation was consolidated with but a single hopper stand. The hopper put the work right at the machine—no lifting or carrying. Production benefited. Floor area became neater, more efficient. Warehouse area was reduced considerably.



Remember handling adds nothing to the value of your product. Unnecessary handling increases your costs, weakens your competitive position. Make sure you have the most efficient handling possible. If you honestly compare—we're sure you, too, will specify Flow-matic* for your handling requirements.

*TM Powell Pressed Steel Co.

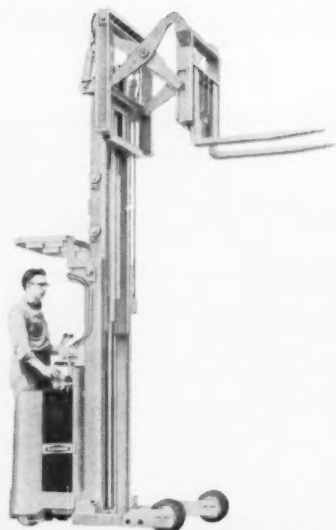


When lift truck operator sets Flow-Matic* box on stand it automatically opens, discharging contents into "right-level" work hopper. The system is easily adaptable to a wide variety of jobs.

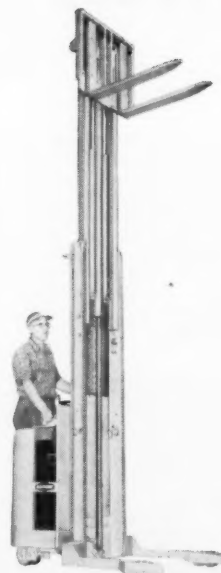
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DEPT. 2115 HUBBARD, OHIO

**Take
your
pick**

from



REACH-FORK TIERING TRUCK
Operates in 6' aisles* with existing racks and pallets. Telescopic, Non-telescopic models: 2,000; 3,000 lb * cap.



STRADDLE TYPE TIERING TRUCK
Right angle tiers from 6-ft. wide aisle*. Telescopic and Non-telescopic models. Capacities: 2,000; 3,000, 4,000 lbs.*

America's most complete line

Designed by



**the firm
that made
6-ft. AISLES
a reality**

NEW LEASE-PURCHASE PLANS
Three new plans make it easy for you to own or lease any RAYMOND Electric Truck. Let our representative tell you how you can rent or purchase over 1 to 3-year periods.

● **Make your next industrial truck a RAYMOND . . .** and gain up to 50% more floor space for production or storage. These rider-type trucks make unbelievable space-savings possible because they operate in aisles previously accessible to hand trucks alone. Moreover, they're offered in a wide range of models for a hundred and one handling jobs.

COMPARE THESE FEATURES

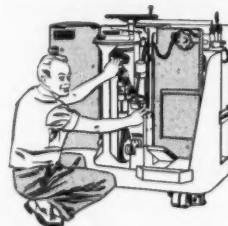
CAN OPERATE IN 6 FT. AISLES*
due to short length and patented off-set drive wheel with 200° turning arc. Patent No. 2,564,002.

INCREASE FLOOR SPACE
as much as 50% by maneuvering in aisles 4 to 6 ft. narrower than counterweighted trucks require.

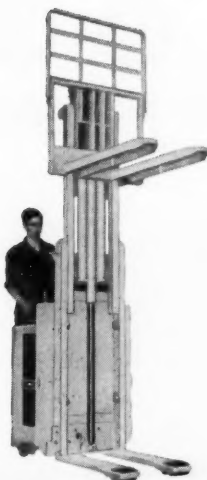
SIMPLE TRAVEL CONTROL
one lever controls all 3 forward and reverse speeds.

*For exact aisle width, ask the Raymond representative to survey your operation.

ACCESSIBLE POWER UNIT
completely accessible . . . easy to service because all parts housed behind hinged double doors.

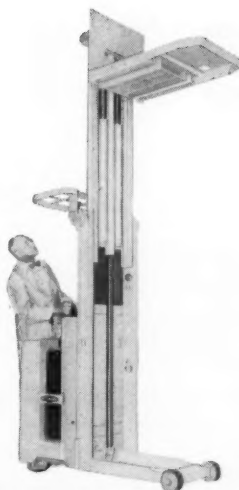


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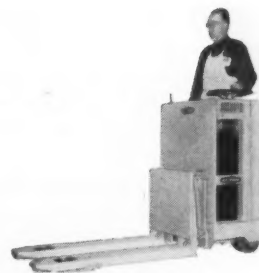
SINGLE-FACE PALLET TRUCK

Designed for single-face pallets, yet works equally well with skids. Tiers in 5½-ft. aisles. Telescopic, Non-telescopic models. Cap: 2,000; 3,000 lbs.



PLATFORM TYPE TIERING TRUCK

For production floor use plus warehousing, shipping. Stacks in 5-ft. aisle. Telescopic models: 2,000; 3,000; or 4,000 lb. cap. Non-telescopic models: 2,000; 4,000 lb. cap.

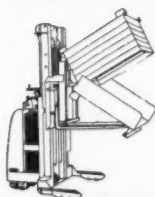


LOW-LIFT TRUCK

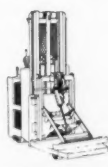
Fast lateral mover because it's a rider-truck. Can operate in 5-ft. aisle. Pallet truck shown. Also available in platform model. Capacity 4,000 lbs.

of narrow-aisle electric trucks

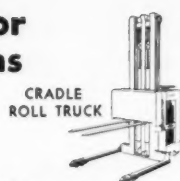
Raymond trucks for special applications



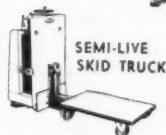
DROP BOTTOM BOX TRUCK



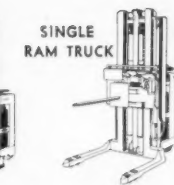
DIE HANDLING TRUCK



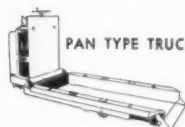
CRADLE ROLL TRUCK



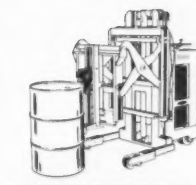
SEMI-LIVE SKID TRUCK



SINGLE RAM TRUCK



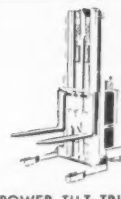
PAN TYPE TRUCK



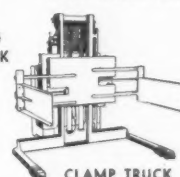
BARREL HANDLING TRUCK



REVOLVING HEAD TRUCK



POWER TILT TRUCK WITH CHISEL FORKS



CLAMP TRUCK

WITH ANY OTHER TRUCK . . .

EASY STEERING

thanks to large wheel and steer mechanism with 100% anti-friction bearings.

LIGHTER WEIGHT

because no counterweight is needed. Operate safely on low-capacity elevators and floors.

DEPENDABLE BRAKE

mechanical brake, spring applied. Simple construction enables brake to be applied gradually.

EASY BATTERY REMOVAL

single battery gate and rollers for easy side removal of battery.

SAFE RIDING

operator's legs fully protected. Ample standing room with sponge rubber floor and leg pads.

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COMPANY _____

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CATALOGS

offered in

Skids Catalog GP-7 published by Ironbound Box & Lumber Company tells how skid platforms and box tops can help you to increase your output and plant space.

Circle 103 on Reader Service Card

Labeling Literature and free sample form-cut stencil and print are offered by The Multistamp Company.

Circle 140 on Reader Service Card

Batteries Bowers Battery & Spark Plug Co. has data available on industrial batteries.

Circle 32 on Reader Service Card

Electric Cars Brochure published by West Coast Machinery, Inc. tells how you can lower material handling costs and speed personnel from one task to another for as little as three cents a day.

Circle 196 on Reader Service Card

Switching Conveyors Metzgar Conveyor Co. will send details on the Flex-A-Switch for two-way or three-way switching of conveyors.

Circle 132 on Reader Service Card

Banding Safe, sure banding for long distance shipping is described in data available from Allegheny Steelband Company.

Circle 7 on Reader Service Card

Casters Literature from The Bassick Company gives details on the new super-heavy S99 casters that take loads up to 1500 pounds.

Circle 28 on Reader Service Card

Retainer Sheets Free samples and packaging information on Fibreen retainer sheets is offered by American Sisalkraft Corp.

Circle 17 on Reader Service Card

Car Door Opener Literature from The Nolan Company tells how any box car door can be opened in 20 seconds or less.

Circle 144 on Reader Service Card

Transfer Cars Full details and prices on Phillips motorized transfer cars in capacities up to 15 tons are offered by Salem-Brosius, Inc.

Circle 153 on Reader Service Card

Electric Trucks A "Space Wheel" that tells the aisle width required for L-S trucks plus probable savings, is offered by Lewis-Shepard Products, Inc.

Circle 116 on Reader Service Card

Warehouse Trucks Information about standard and special warehouse trucks is offered by The Howe Scale Co., Inc.

Circle 95 on Reader Service Card

Dumps Literature offered by Materials Transportation Co. pictures and describes cable lift dumps and hydraulic tilt dumps in capacities up to 5000 pounds.

Circle 120 on Reader Service Card

Vibrating Conveyors Information from Vibro-Plus Products, Inc. tells how Shake-Out vibrators save time and money unloading covered hopper cars.

Circle 189 on Reader Service Card

Dock Shelters How foldable tunnelled passageways can be provided by Dazzo Products Company's dock shelters is told in bulletin form by the manufacturer.

Circle 55 on Reader Service Card

Tow-Line Trucks Bulletin 54-TL from Nutting Truck & Caster Co. gives details on how tow-line trucks can save money.

Circle 146 on Reader Service Card

Parts Bins The Chas. Wm. Doepke Mfg. Co., Inc., offers data on equipment for small parts handling.

Circle 61 on Reader Service Card

Electric Hoist The 1/2-ton CM Lodestar small electric hoist is pictured and described in literature published by Chisholm-Moore Hoist Division.

Circle 42 on Reader Service Card

and BULLETINS

advertisements in this publication

Fork Truck . . . Power steering is standard on the new truckman W-40 fork truck, says literature from Truck-Man Division of the Knickerbocker Co.

Circle 182 on Reader Service Card

Container . . . Engineered containers for every shipping need are detailed in literature prepared by Central Box Company.

Circle 80 on Reader Service Card

Storage Racks . . . Catalog from American Metal Products Co. outlines storage racks for practically every storage need.

Circle 14 on Reader Service Card

Marker . . . Cushman & Denison Mfg. Co. will supply information on the Flo-master felt-tip marking pen.

Circle 52 on Reader Service Card

Hoists . . . You save time, effort and money with a Tugit hoist, according to data from Manning, Maxwell & Moore, Inc.

Circle 125 on Reader Service Card

Automatic Nailer . . . Catalog from Auto-Nailer Co. gives information on two new automatic nailing machines.

Circle 22 on Reader Service Card

Cranes . . . Anything you can hang on a hook can be easily handled by a Ruger crane, says data from Ruger Cranes.

Circle 166 on Reader Service Card

Racks . . . Adjustable pallet racks with boltless shelves are described in literature available from Rack Engineering Co.

Circle 155 on Reader Service Card

Shelving . . . 48-page catalog published by DeLuxe Metal Furniture Co. gives important data on steel shelving.

Circle 56 on Reader Service Card

Belting . . . Full information on belting in a wide variety of widths and thicknesses is offered by Victor Balata & Textile Belting Co.

Circle 188 on Reader Service Card

Staple Tackers . . . Data on Duo-Fast tackers for shipping departments is offered by Fastener Corporation.

Circle 76 on Reader Service Card

Sweepers . . . Details about the cost-saving performance of heavy duty power sweepers is available from G. H. Tennant Co.

Circle 177 on Reader Service Card

Crane Scale . . . Data on the Ametron electronic crane scale may be obtained from Streeter-Amet Co.

Circle 173 on Reader Service Card

Trailers . . . Bulletins published by Mercury Manufacturing Company describe the firm's complete line of industrial trailers.

Circle 130 on Reader Service Card

Conveyor Systems . . . Power belt and gravity conveyor systems are described in bulletins 400 and 401 published by A. B. Farquhar Division, The Oliver Corp.

Circle 75 on Reader Service Card

Casters . . . Completely sealed casters in a broad range of sizes and wheel types are described in literature published by Albion Industries, Inc.

Circle 5 on Reader Service Card

Imprinting Machines . . . Bulletin 750 offered by Adolph Gottscho, Inc. gives data on coding, marking and imprinting machines.

Circle 86 on Reader Service Card

Conveyors . . . How one man completely controls a coordinated conveying system, routing and switching to two groups of loading docks, is told by The Alvey-Ferguson Co.

Circle 10 on Reader Service Card

Electric Fork Trucks . . . Lease plans and time payment plans are described in literature published by The Elwell-Parker Electric Co.

Circle 68 on Reader Service Card

Process Belts . . . Illustrated Catalog F52 published by Ashworth Bros., Inc. gives details on process belts that are heat resistant, chemically resistant and abrasion resistant.

Circle 20 on Reader Service Card

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4	21	38	55	72	89	106	123	140	157	174	191	208	225	242	259	276	293	310	327
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6	23	40	57	74	91	108	125	142	159	176	193	210	227	244	261	278	295	312	329
7	24	41	58	75	92	109	126	143	160	177	194	211	228	245	262	279	296	313	330
8	25	42	59	76	93	110	127	144	161	178	195	212	229	246	263	280	297	314	331
9	26	43	60	77	94	111	128	145	162	179	196	213	230	247	264	281	298	315	332
10	27	44	61	78	95	112	129	146	163	180	197	214	231	248	265	282	299	316	333
11	28	45	62	79	96	113	130	147	164	181	198	215	232	249	266	283	300	317	334
12	29	46	63	80	97	114	131	148	165	182	199	216	233	250	267	284	301	318	335
13	30	47	64	81	98	115	132	149	166	183	200	217	234	251	268	285	302	319	336
14	31	48	65	82	99	116	133	150	167	184	201	218	235	252	269	286	303	320	337
15	32	49	66	83	100	117	134	151	168	185	202	219	236	253	270	287	304	321	338
16	33	50	67	84	101	118	135	152	169	186	203	220	237	254	271	288	305	322	339
17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	289	306	323	340

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3	20	37	54	71	88	105	122	139	156	173	190	207	224	241	258	275	292	309	326
4	21	38	55	72	89	106	123	140	157	174	191	208	225	242	259	276	293	310	327
5	22	39	56	73	90	107	124	141	158	175	192	209	226	243	260	277	294	311	328
6	23	40	57	74	91	108	125	142	159	176	193	210	227	244	261	278	295	312	329
7	24	41	58	75	92	109	126	143	160	177	194	211	228	245	262	279	296	313	330
8	25	42	59	76	93	110	127	144	161	178	195	212	229	246	263	280	297	314	331
9	26	43	60	77	94	111	128	145	162	179	196	213	230	247	264	281	298	315	332
10	27	44	61	78	95	112	129	146	163	180	197	214	231	248	265	282	299	316	333
11	28	45	62	79	96	113	130	147	164	181	198	215	232	249	266	283	300	317	334
12	29	46	63	80	97	114	131	148	165	182	199	216	233	250	267	284	301	318	335
13	30	47	64	81	98	115	132	149	166	183	200	217	234	251	268	285	302	319	336
14	31	48	65	82	99	116	133	150	167	184	201	218	235	252	269	286	303	320	337
15	32	49	66	83	100	117	134	151	168	185	202	219	236	253	270	287	304	321	338
16	33	50	67	84	101	118	135	152	169	186	203	220	237	254	271	288	305	322	339
17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	289	306	323	340

Magnetic Broom Magne-tool Division of Multifinish Mfg. Co. offers literature and a free trial on the new rotary magnetic broom. Circle 139 on Reader Service Card

Containers The flexibility and versatility of its containers is described in literature by The Youngstown Steel Door Co. Circle 202 on Reader Service Card

Hoppers The Powell Pressed Steel Co. will supply information on how you can cut handling costs with automatic feed hoppers and boxes. Circle 154 on Reader Service Card

Wire Rope Booklet titled "The Right Rope for the Job" is offered by American Steel & Wire Division, United States Steel Corp. Circle 18 on Reader Service Card

Vibrating Conveyor Gifford-Wood Co. has available an idea book on engineered material handling which tells the story of the Oscilveyor. Circle 81 on Reader Service Card

Conveyors Details on how you can produce more for less are contained in literature from The E. W. Buschman Co. Circle 36 on Reader Service Card

Dock Covers Literature from Capco tells about dock covers that give year 'round protection. Circle 40 on Reader Service Card

Stencil Ink Reynolds Ink, Inc. offers literature on quick drying, waterproof stencil ink. Circle 167 on Reader Service Card

Electric Riders Catalog from The Raymond Corporation gives information on electric trucks you can ride and operate in narrow aisles. Circle 157 on Reader Service Card

Labeling Complete information on Weber Marking Systems' direct-to-container addressing method is offered by the manufacturer. Circle 195 on Reader Service Card

Hydraulic Lifting Tables Hundreds of time-saving uses are possible with the hydraulic L table, says literature from Lange-Lift Company. Circle 113 on Reader Service Card

Hoists Bulletins describing floor-operated and cab-operated hoists are offered by Shepard Niles Crane and Hoist Corp. Circle 169 on Reader Service Card

Car Spotters Bulletin T-115 from Whiting Corporation tells about the new heavy-duty Trackmobile designed to move freight cars at low cost. Circle 197 on Reader Service Card

Lifts Booklet titled "Case Studies in Modern Lifting" is offered by Globe Hoist Company. Circle 83 on Reader Service Card

Torque Transmission Fork Truck Color booklet published by The Yale & Towne Manufacturing Co. includes cut-away of the KGA51 torque transmission truck and highlights features of the new unit. Circle 200 on Reader Service Card

Marker How you can simplify your marking, dating and coding operations is described in a catalog published by Industrial Marking Equipment Company, Inc. Circle 101 on Reader Service Card

Boxes and Crates A copy of "What to Expect from Wirebounds" is available from the Wirebound Box Manufacturers Association. Circle 199 on Reader Service Card

Two-Way Radio Radio Corporation of America offers information on "2-Way Radio Materials Handling". Circle 156 on Reader Service Card

Battery Manual Exide Industrial Division offers Form 1982 which gives installation and maintenance information on motive power batteries. Circle 72 on Reader Service Card

Tote-Shop Boxes How to solve storage and handling problems with tote boxes, trays and pallets is told in literature published by Cesco Container Co. Circle 41 on Reader Service Card

Cranes Bulletin DH-468 published by the Wright Hoist Division of Amerjean Chain & Cable tells about hand traveling cranes. Circle 12 on Reader Service Card

Racks Time- and space-saving equipment that permits new economy, efficiency and handling ease is described in literature published by The Frick-Gallagher Mfg. Co. Circle 78 on Reader Service Card

Gas Trucks Pneumatic tired gasoline fork trucks are detailed in literature offered by Hyster Company.

Circle 97 on Reader Service Card

Drum Lifter Merrill Brothers has data available on drum lifters and drum openers.

Circle 131 on Reader Service Card

Batteries . . . C & D Batteries, Inc. offers a list of industrial battery service station locations.

Circle 38 on Reader Service Card

Expendable Pallets . . . Brochure from Mead Board Sales, Inc. gives information on the Chestnut Poke-Pak expendable fiberboard pallet.

Circle 129 on Reader Service Card

Dockboard . . . Karl A. Herman Company tells how to stop profit leaks in a free, illustrated brochure.

Circle 92 on Reader Service Card

Air Hoist . . . Data on air hoists to fit your job is available from The ARO Equipment Corporation.

Circle 19 on Reader Service Card

Power Sweeper . . . Literature published by Wayne Manufacturing Co. gives details on the new power sweeper that has no dust bag to empty.

Circle 192 on Reader Service Card

Batteries Information on industrial truck batteries is available from Gould-National Batteries, Inc.

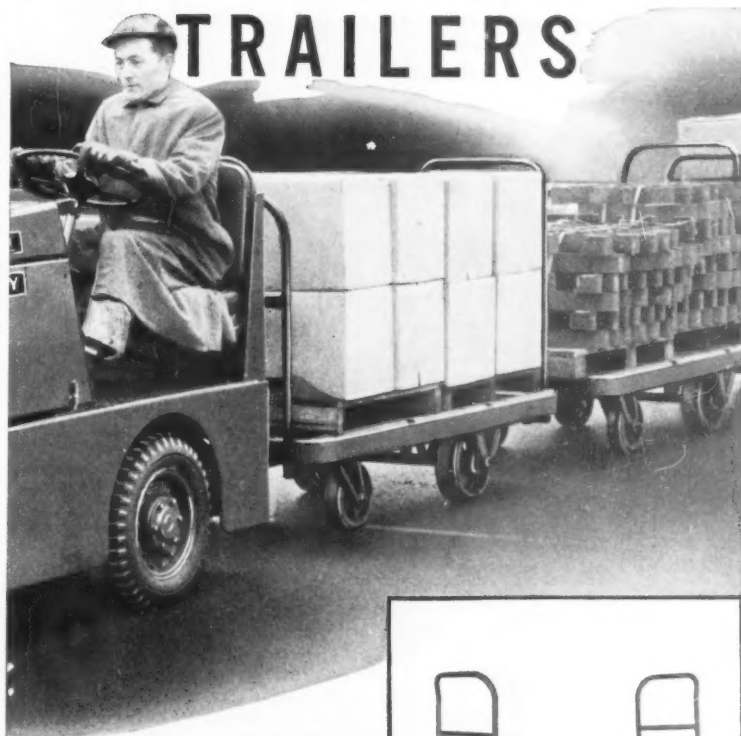
Circle 151 on Reader Service Card

Diesel Fork Trucks . . . Facts on how you can plan a new safety record in your plant with Buda diesel engine fork trucks are offered in folder-form by Allis-Chalmers Manufacturing Co., Buda Division.

Circle 35 on Reader Service Card

TONNAGE TRAVELS FOR LESS ON THE MERCURY "TRACKLESS TRAIN"

MERCURY TRAILERS



The most complete line of industrial trailers

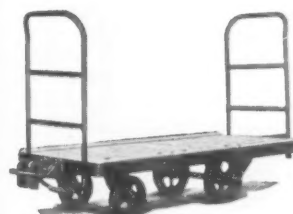
Save valuable man-hours with the low cost tractor-trailer method. Free of any fixed path — the versatile Mercury "TRACKLESS TRAIN" travels wherever material movement dictates...long hauls, short hauls or snaking through congested areas. Delivers more tonnage at lower cost because the "Trackless Train" keeps loads on wheels and readily movable by hand for short distances. Moves more tonnage by merely adding more trailers . . . no increase in power units.



MERCURY MANUFACTURING COMPANY

4154 South Halsted Street • Chicago 9, Illinois

Circle No. 130 on Reader Service Card for more information



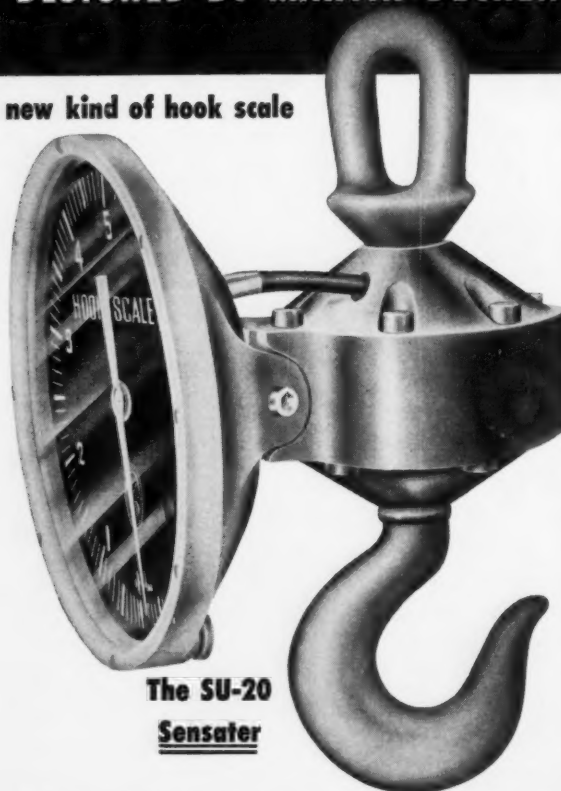
Mercury A-310 Castor Steer Trailer—For nearly a half century industry has accepted the A-310 Trailer as its standard because of its suitability for general all-purpose work and its ability to provide the lowest cost transportation per ton mile.

Mercury trailers are designed to meet the flexible requirements of the user. Models include castor steer, fifth-wheel steer and four-wheel steer trailers in capacities ranging from 2000 to 60,000 lbs. . . . decks and bodies can be built to suit the commodity handled. Find out how Mercury trailers will save you money and solve the problem of horizontal movement of materials.

Write for free bulletins describing Mercury trailers today.

DEMANDED BY INDUSTRY— DESIGNED BY MARTIN-DECKER

A new kind of hook scale



**The SU-20
Sensater**

For years you have asked for a hook scale like this. For years you have had to compromise. Haven't you always wanted a hook scale that was accurate, rugged, versatile, compact, and light weight — and yet, *inexpensive*?

The new SU-20 Sensater Hook Scale combines these features and more. How? Martin-Decker has designed a completely new kind of hydraulic load cell with a wonder-working mobile diaphragm that operates with *no friction whatsoever*!

Unlike any diaphragm you have ever seen, the Sensater's mobile diaphragm does not stretch or deflect but moves with its backing plate to give a piston-like stroke without being encumbered with any friction-causing piston-rod or O-rings. Since the diaphragm does not stretch, there is no chance of its rupturing. It will give you years of trouble-free operation. And its accuracy is unaffected by temperature and fluid changes.

This lack of a piston-rod also means less weight and much less headroom loss. The 5000-pound-capacity model, for instance, only requires 15-11/32". This same model only weighs 70 pounds (about half the weight of hook scales of comparable capacity). Installation and use are simple one-man operations.

The SU-20 Sensater Hook Scale has an easy-to-read dial that can be tilted up or down to any eye level. Full 360° hook rotation. Full 360° dial. High safety factor.

For prices and other information, contact your nearest Martin-Decker distributor or Martin-Decker Corporation, 3431 Cherry Avenue, Long Beach 7, California. Dept. N-3



SB-10 CRANE WEIGHT INDICATOR tells total weight, boom radius, and capacity at each radius.



S-4 CRANE WEIGHT INDICATOR — small, low cost, remote reading, for use on all types of cranes.



J-701 TENSIO METER unitized instrument, used as traction dynamometer, suspension scale, etc.



J-702 TENSIO METER remote indicating dynamometer, suspension scale, cable strain equalizer, etc.



LIFT TRUCK SCALE makes any hydraulic-cylinder-type lift truck a scale, assures full, safe load.



STANDARD TENSION INDICATOR used as dynamometer or for equalizing strain on cables, wires, etc.



HEAVY-DUTY TENSION INDICATOR for use on 3/4" to 1 1/2" wires and cables; has 200,000-lb. capacity.



HEAVY-DUTY TENSION INDICATOR for use on 3/4" to 1 1/2" wires and cables; has 200,000-lb. capacity.

AD LITERATURE

Continued

Power Units . . . Information on gas-electric, LPG-electric and diesel-electric power units for industrial trucks is offered by The Ready-Power Co.

Circle 158 on Reader Service Card

Hydraulic Equipment . . . Vickers Incorporated has data available on an effective preventive maintenance program for oil hydraulic equipment.

Circle 187 on Reader Service Card

Containers . . . Full details on the new Band-Box container are offered by Ackermann Manufacturing Company.

Circle 1 on Reader Service Card

Dockboards . . . Bulletin DB-204 published by Magline, Inc. describes magnesium dockboards.

Circle 122 on Reader Service Card

Conveyors . . . Mathews Conveyor Company will supply information on conveying machinery for all types of industries.

Circle 128 on Reader Service Card

High Lift Walkie . . . Bulletin from Economy Engineering Co. gives details on the Walkie-Worklifter which can be furnished in 39 standard models.

Circle 67 on Reader Service Card

Tote Box Truck . . . Rolock Inc.'s folder F gives details on a roller truck said to be low cost, safe and smooth operating.

Circle 163 on Reader Service Card

Wheelbarrows . . . Literature offered by Sterling Wheelbarrow Co. tells how you can save time and labor when hauling castings.

Circle 174 on Reader Service Card

Tires and Wheels . . . The B. F. Goodrich Company will send you information on a tire and wheel analysis plan.

Circle 84 on Reader Service Card

MARTIN-DECKER CORP.
HOME OF THE WEIGHT INDICATOR — LONG BEACH, CALIFORNIA

Circle No. 127 on Reader Service Card for more information

Look at what's new in low-cost freight car moving!

WHITING Presents the New Heavy-Duty TRACKMOBILE®

Here's power and ruggedness for moving freight cars at *low cost*! The new Heavy-Duty Trackmobile makes *tough jobs easy*. Clogged sidings, bottlenecks and heavy traffic present no problem. Drive the Trackmobile on road wheels to the track—transfer to rail wheels—couple—then pull those heavily loaded cars! The Trackmobile speeds up switching, spotting, hauling . . . keeps shipping operations on the move . . . provides *new flexibility*. Designed for *continuous* 24-hour service—day or night—rain or shine. Look to the new Heavy-Duty Trackmobile *now* as a way to make important cost reductions!

WHITING CORPORATION

15659 Lathrop Avenue, Harvey, Illinois

Manufacturers of CRANES • TRAMBEAM • FOUNDRY,
RAILROAD AND CHEMICAL EQUIPMENT

*The Trackmobile principle of operation has been proved
in hundreds of applications in scores of industries.*



WHITING
Heavy-Duty
TRACKMOBILE®

Write today for the new Heavy-Duty Trackmobile Bulletin T-115. Give us an idea of your individual freight car handling problems, and we'll be glad to suggest ways the Trackmobile can save you both time and money.

*Transfers from road
to track, or back again,
in less than two minutes!
On track it pulls railroad
cars . . . on road it pulls
skids, carts or portable
equipment.*

Circle No. 197 on Reader Service Card for more information

Geared TO MEET INDUSTRIES' DEMAND FOR HIGH QUALITY CONVEYING MACHINERY



New office and engineering building, completed early in 1955. Part of an extensive program of expansion of the engineering and manufacturing facilities at the Ellwood City, Pennsylvania, plant.

Whatever the conveying problem might be — whether it involves the handling of a few pounds or many tons — **Mathews** builds the equipment to do the job. You can be sure of this service, from proposition through installation, when you buy **Mathews Conveyers**. And, of course, you get the benefit of **fifty years' experience** in continuous flow material handling.



Engineering Offices or Sales Agencies in Principal American and Canadian Cities
Export Representative—Foreign Trade Division of New York Hanseatic Corporation

MATHEWS

Circle No. 128 on Reader Service Card for more information

HIGHLIGHTS of the month's NEWS

THERE'S been so much talk about streamlining manufacturing procedures—"automation" if you will—with workers particularly worried about new machinery replacing them, that the many new fields and new and better jobs afforded by this revolution have been generally overlooked.

Naturally, in an economy such as ours where the American worker is more often "boss" than is the firm's president, when any procedure other than the "normal" occurs, it is to be expected that millions of Americans who will be affected by the change will be opposed to the unknown new as compared to the familiar old.

In this respect, members of the National Electronics Conference, meeting in Chicago last month, heard one of the leaders of a recent entrant to the industrial field tell of the many possibilities for just one product—industrial television. James L. Lahey, general manager of Dage Television Division, Thompson Products, Inc., said that his company alone would install more cameras next year than the total installations of all manufacturers to date. Television was said to be emerging as an electronic giant with fantastic possibilities. Material handling, production control, traffic control and process control were only a few of the many uses noted for the product.

The point is that while industry will change with more and better methods, workers will benefit, not lose. More plants and more workers will be necessary to manufacture the new equipment which will be used to automate plants. Working conditions will be greatly improved, intelligence levels will be raised, job opportunities will be greater, and everyone will benefit. What's more, man's work will be easier.

PROOF OF QUALITY

J & L's Lima is shown unloading coils of hot strip steel outside a warehouse at the Cleveland Works... just one of the wide variety of materials handling jobs assigned to this rugged, versatile machine.



J & L Steel's Cleveland Works reports:

"We get dependable materials handling mobility with our fast-moving wagon mounted Lima"

"Our rugged, fast-moving wagon mounted Lima crane makes materials handling equipment available fast *where* we need it, *when* we need it—in every corner of our plant." That's the report from Jones & Laughlin Steel Corporation's Cleveland Works. They've had a quality-built Lima wagon mounted Type 34 working at yard materials handling assignments since 1950. J & L's Lima first spent several years loading limestone at their blast furnaces . . . 24 hours a day, seven days a week without breakdown. In 1953 the machine had its only overhaul. A generator was added, and the Lima was magnetized. Since then, it's been used—with hook or magnet—to load and unload rails, scrap, castings, coil steel from the hot strip mill, and a variety of receivable materials in every part of the plant.

J & L says: "We really benefit from our Lima's mobility. It works in locations that can't be reached with other types

of equipment. We move it all over the plant, sometimes a distance of 4 miles from one working location to another. Naturally, rapid movement is essential, and our Lima can really be moved quickly from job to job. That makes it possible for us to get maximum service from the machine during its operating periods.

"Performance has been excellent for all general requirements within the Lima's capacity. Maintenance costs have been at a minimum during five years' service."

Why not let a Lima help to solve *your* materials handling problems. Let us give you full details on the complete line of wagon, truck and crawler mounted Limas . . . designed and built with the emphasis on quality to give *you* perfect performance on every job. See your nearby Lima distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD



LIMA SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

BALDWIN-LIMA-HAMILTON

Construction Equipment Division • LIMA • OHIO • U. S. A.

Circle No. 25 on Reader Service Card for more information

AUSTIN-WESTERN HYDRAULIC CRANE

Most Versatile Tool



What at Columbia Steel

Useful Inside and Outside...Lifts, Carries, and Spots Any Material Anywhere

Says Robert W. Williamson, Plant Engineer

**Columbia Steel & Shafting Co.,
Carnegie, Pa.**

"This hydraulic unit—has met every requirement we have made of it."

"Besides that, the over-all savings is impressive."

"Our Hydraulic Crane has proved to be so powerful, speedy and maneuverable that it has replaced a smaller mobile crane and its operator, as well as a crawler tractor requiring another operator."

"We save the difference in the cost between owning and operating one versatile tool in place of two less useful ones."

RETURNS 100% A YEAR ON INVESTMENT

"... We figure our A-W unit directly saves us 100% a year on our investment—plus helping to reduce maintenance cost and downtime."

HANDLES NUMEROUS JOBS

"This hydraulic unit frequently supplements the Shipping Department's facilities and loads box cars and trucks with finished steel."

"When an overhead crane is down for repairs, our Austin-Western unit unloads four-foot diameter coils of wire and arranges them in racks in the warehouse."

"When trucks happen to be immobile with tire and battery trouble, we pull them in or assist in quick tire change."

"When our 45-ton diesel is tied up elsewhere, we even pull loaded gondola and box cars on our switch tracks."

"The crane takes all kinds of conditions in stride."

"... have really required no repairs in 10 months of pretty grueling service."



Circle No. 9 on Reader Service Card for more information

AUSTIN-WESTERN COMPANY

Construction Equipment Division • Baldwin-Lima-Hamilton Corporation

AURORA, ILLINOIS, U.S.A.

Power Graders • Motor Sweepers

Road Rollers • Hydraulic Cranes

AUSTIN-WESTERN COMPANY

620 Farnsworth Avenue, Aurora, Illinois

Please send complete Gould Certified Report N. 5507.

Name

Title

Company

Street

City Zone State



NO FLATS
with
NOTATS

An unretouched photograph showing Laminated NOTAT TIRES performing under adverse conditions

Notat laminated tires completely eliminate "down-time" caused by tire trouble. There's no tube or air chamber to go flat. And, unlike solid tires, Notats will "give" to prevent the jarring of loads . . . will actually ride and steer like pneumatics at in-plant speeds. Notat's laminated construction features hundreds of "pads" molded together (reinforced with steel bands)—yet each pad functions individually for greater traction and faster stopping. For elimination of down-time, easier steering, greater traction and longer life, switch to NOTATS. In sizes from 4.00 x 8 to 8.50 x 24. Write today for price list and further information.

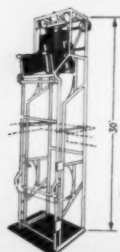
Sold By Materials Handling Equipment Dealers Everywhere.



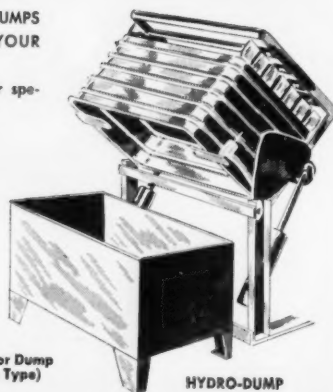
The original laminated tire — accept no substitutes.
NOTAT TIRE COMPANY
1504 E. 34th Street • Chattanooga, Tenn.

MTC CAPACITIES
1000 lbs. to 5000 lbs.
CABLE LIFT DUMPS
HYDRAULIC TILT DUMPS

ALL TYPES OF DUMPS
DESIGNED FOR YOUR
SPECIFIC NEEDS
Handles standard or special tote boxes



Multifloor Dump
(Cable Type)



HYDRO-DUMP

Write for descriptive literature today

MATERIALS TRANSPORTATION COMPANY

400 N. Michigan Ave. • Chicago 11, Ill. • Superior 7-7419



Side Entry
Trailer Dump



Tote Box
Dump



Cable Tote
Box Dump



Hydraulic
Tote Dump

Circle No. 120 on Reader Service Card for more information

**association
and society
NEWS**

• Bookings for July, just released by The Material Handling Institute, were 12 percent above 1954's average. This was viewed as rather remarkable because of the fact that many plants were closed for vacations for half of the month.

• The past, present and future of automation were reviewed before hundreds of manufacturing executives at a special conference conducted by the American Management Association, October 10-12. Included in the three day program was an analysis of the nature and techniques of automation, case histories in its application, and assessments of its future.

• Warehousing problems were discussed at the kick-off program of the Cleveland Chapter of the American Material Handling Society, September 22. Featured speaker was J. M. McKay, executive secretary of the Ballinger-Meserole Company, Philadelphia.

• Operations Research was the subject under discussion at the Society for Advancement of Management's conference in New York, September 29-30. First developed during World War II by the Armed Services, Operations Research has since demonstrated its value in business and industrial applications. Its function is to give executives a basis for predicting quantitatively the most effective results of an operation under given sets of variable conditions, and thereby provide a sound basis for decision-



New

ROTARY TRUCK LEVELER makes big savings in loading costs

Takes no space. The Rotary Truck Leveler eliminates the need for ramps and dockboards and saves the space they require. It is installed in the driveway in front of the loading dock, leaving the dock platform completely free of obstructions.

Dual hydraulic jacks with 40,000-lbs. capacity raise or lower the truck or trailer to bring the bed level with the loading dock. Angle of incline between trailer bed and dock is reduced to a minimum . . . pallet trucks move in and out with maximum speed and safety. A raised center curb section provides fast, accurate truck positioning.

Operation is by economical, maintenance-free Rotary Oildraulic® electric power unit. Dependability assured by Rotary Lift Company's experience in building over 100,000 oil-hydraulic lifting devices.



For new or old buildings. The Rotary Truck Leveler is easily installed in any building. It is the ideal equipment for docks where construction or space limitations prevent use of ramps.



TRUCK LEVELER

Manufactured by

ROTARY LIFT CO., MEMPHIS 2, TENN.

Specialists in oil-hydraulic lifting devices.



MAIL COUPON FOR COMPLETE DATA

Rotary Lift Co.
1039 Kentucky
Memphis 2, Tenn.

Send complete data on the Rotary Truck Leveler to:

Name _____

Address _____

Circle No. 164 on Reader Service Card for more information



new Baker

***S*HOVELOADER**

saves up to \$400 on initial cost

Now you can mechanize your bulk handling operations for less than \$10.00 per day for one year . . . much less than you pay a laborer with a hand shovel!

This rugged Model 20 SHOVELOADER has a lifting capacity of 1500 pounds, and lifting height of 7 feet. Standard bucket size is 12 cubic feet. Loader arms are in *front* of operator—not around him—protecting him from injury and providing full 360° visibility at all times.

Four forward speeds with top travel speed of 14 MPH make this a *fast* machine and insure better operation on ramps and rough ground conditions.

Bucket tilt-back at ground level means a full load at every grab, and permits low carrying position for travel. Other advantages are longer forward reach, greater longitudinal stability, extremely low maintenance because of easy accessibility of all parts requiring service, and design of the husky, trial-proven engine.

Special attachments are available for special jobs—forks for palletized loads, crane hooks for hoisting, and special buckets for dense materials. Catalytic exhaust system is available for inside work, where required.

Compare these and SHOVELOADER's many other features with loaders costing \$350 to \$400 more! Write for complete information. The Baker-Raulang Company, 1219 W. 80th St., Cleveland 2, Ohio.

Baker
HANDLING EQUIPMENT

Circle No. 23 on Reader Service Card for more information

ASSOCIATIONS

Continued

making and forecasting. SAM's Operations Research Conference Committee includes H. W. Bloodworth, General Electric; Milton I. Brand, Nowland and Company; Mel Hurni, General Electric; Gifford Symonds, Esso Standard Oil Co.; Thomas M. Whittin, Massachusetts Institute of Technology; and Harry B. Wissman, Arthur D. Little, Inc.

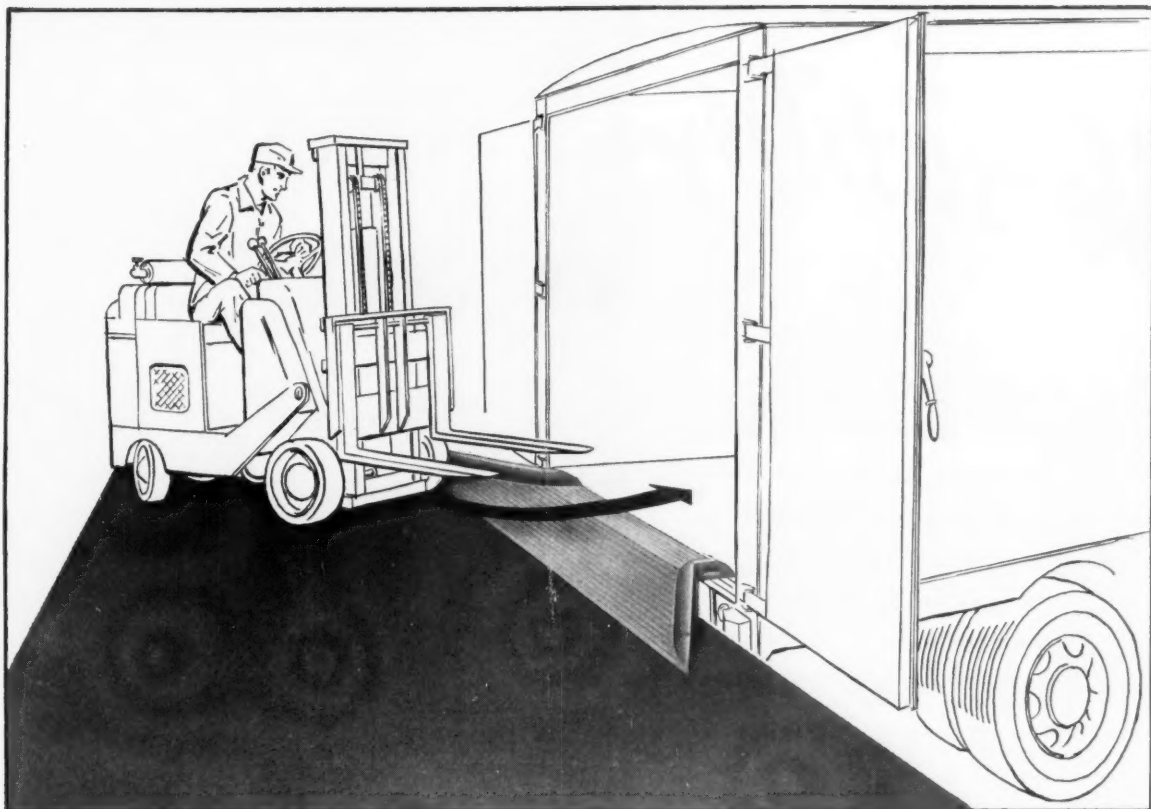
● **Guest speaker** at the initial Fall meeting of the Montreal Chapter of the American Material Handling Society was Irving M. Footlick, consulting engineer. His topic was "What's New and Different in the Material Handling Field."

● **Members** of the Wisconsin Chapter of the Society of Industrial Packaging and Materials Handling Engineers met in Milwaukee on September 27 for their first meeting of the season. George Farrah and Lawrence Von Gnechten of National Container Corporation spoke on "Procedures and Meaning of Quality Control".

● **Iowa's first Products Show** is scheduled for November 17-18 in Des Moines' new Veterans Memorial Auditorium. More than 4000 firms have received invitations to the event, sponsored by the Purchasing Agents Association of Central Iowa, which will feature industrial products and services.

● **A look ahead** to the future of air cargo and all associated operations from shipper to customer will highlight the technical sessions of the 1955 American Society of Mechanical Engineers' Aviation Division meeting in Chicago, November 14. The general meeting will run from November 13 to 18.

5582



Flared Magcoa Dockboard solves sharp-turn problem on narrow truck dock; permits safe, easy turn which was previously impossible.

Many congested-truck-dock problems solved by flared Magcoa Magnesium Dockboards

Lift truck turning problems created by narrow docks are solved quickly by Magcoa *flared* Dockboards. Even big, wide truck docks sometimes get clogged with loads and equipment—it happens in the best of companies! Here, too, a Magcoa *flared* Dockboard is usually the best solution.

Flared construction eliminates the need for sharp right-angle turns which are always awkward and dangerous—and are sometimes completely impossible. Magcoa flared construction permits the operator to do most of the turning *while on the Dockboard*. It's like having a wider dock to turn on. This means quicker, safer truck loading and unloading.

The exclusive Magcoa angle stop *under the Dockboard* holds it positively in place during loading, yet needs less than an inch of space between truck and dock. You back up to the dock only once . . . set your brakes . . . position your Magcoa Dockboard . . . and start loading or unloading!

Every Magcoa Dockboard is constructed of magnesium, the lightest

of structural metals. Every Magcoa Dockboard has the patented hand holds, quarter-round safety curbs and other safety features which have made Magcoa Dockboards famous.

Other Complications? If your truck dock is too high or too low, as well as being too narrow, your Magcoa Representative can furnish a Dockboard which solves both problems at once.

Rail Dock Turning Problems? On narrow, congested rail docks, too, flared construction is one of several Magcoa features which can help you get the loading and unloading job done with maximum speed and safety. Problems such as low equipment under-clearance and narrow rail car door openings can be solved at the same time.

What's Your Loading Problem? A narrow, congested dock? A low dock? Inefficient loading from ground level? Spilling or damaging loads? Planning the dock for a new plant or warehouse? Modernizing an old dock? Switching to higher-capacity lift trucks or pallet trucks?

Whatever the loading problem, the odds are 1000 to 1 that your local Magcoa Representative has encountered it and solved it before.

A Suggestion—Send for our free new bulletin, "What to do about Difficult Docks." It's loaded with practical, helpful ideas.

MAGNESIUM COMPANY OF AMERICA

MATERIALS HANDLING DIV.
EAST CHICAGO 1, INDIANA

Representatives in principal cities



IN CANADA—Magcoa Limited,
277 Kipling Ave. South
Toronto 14, Ontario

<input type="checkbox"/>	Please send "Difficult Docks" bulletin
Name and Title _____	
Company _____	
Address _____	
City-Zone-State _____	

Copyright, 1955, Magnesium Company of America.

Circle No. 124 on Reader Service Card for more information

NOVEMBER, 1955

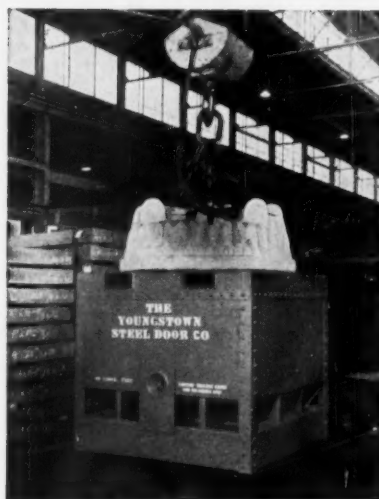
45

Versatility

The versatility of handling illustrated by these action shots, clearly demonstrates the flexibility of design of Youngstown containers. Our engineers can as readily tailor Youngstown containers to fit your needs perfectly.



- ▲ CRANE HANDLING
- ◀ FORK LIFT TRUCK HANDLING
- ▼ MAGNET HANDLING



● Consult with us for improved handling of your bulk materials

THE YOUNGSTOWN STEEL DOOR CO.

Camel Sales Company • Camel Company Limited

CLEVELAND • CHICAGO • NEW YORK • YOUNGSTOWN

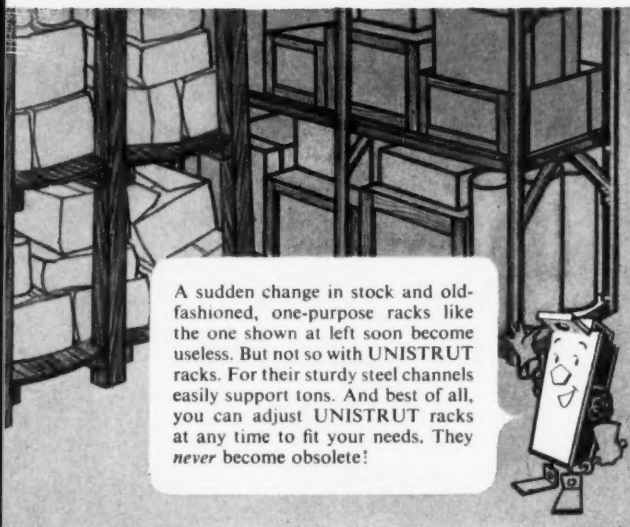
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The Sky's The Limit™

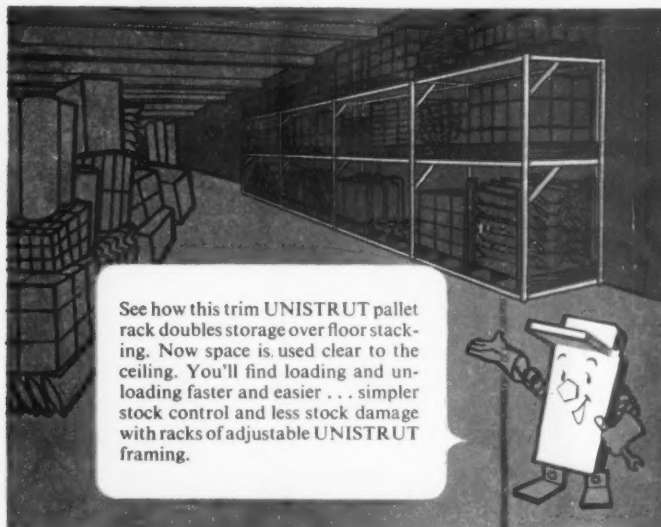
—when you build with UNISTRUT®



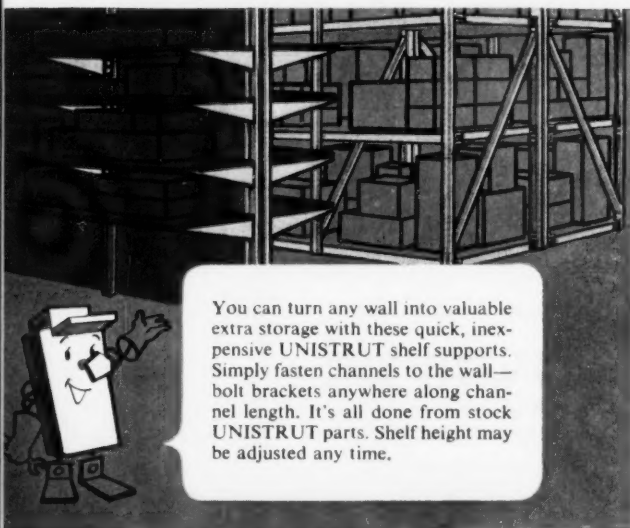
Mr. Strut shows four ways to get more storage from present space with UNISTRUT® framing



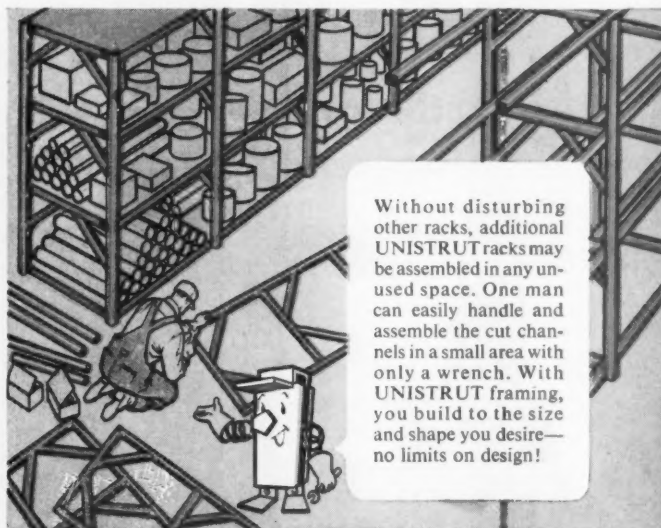
A sudden change in stock and old-fashioned, one-purpose racks like the one shown at left soon become useless. But not so with UNISTRUT racks. For their sturdy steel channels easily support tons. And best of all, you can adjust UNISTRUT racks at any time to fit your needs. They *never* become obsolete!



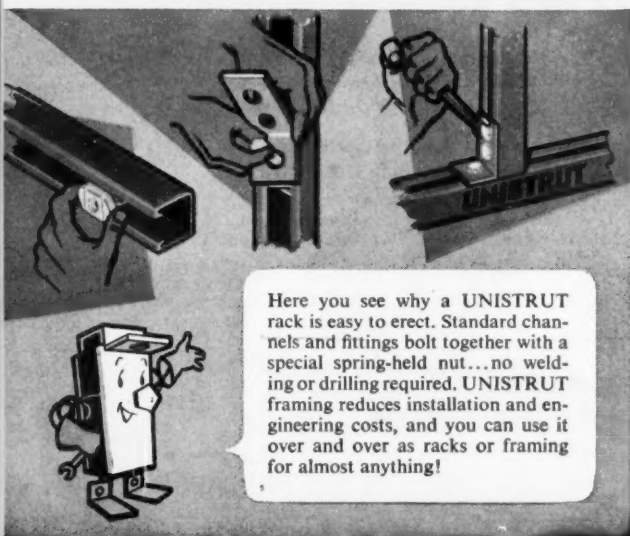
See how this trim UNISTRUT pallet rack doubles storage over floor stacking. Now space is used clear to the ceiling. You'll find loading and unloading faster and easier . . . simpler stock control and less stock damage with racks of adjustable UNISTRUT framing.



You can turn any wall into valuable extra storage with these quick, inexpensive UNISTRUT shelf supports. Simply fasten channels to the wall—bolt brackets anywhere along channel length. It's all done from stock UNISTRUT parts. Shelf height may be adjusted any time.



Without disturbing other racks, additional UNISTRUT racks may be assembled in any unused space. One man can easily handle and assemble the cut channels in a small area with only a wrench. With UNISTRUT framing, you build to the size and shape you desire—no limits on design!



Here you see why a UNISTRUT rack is easy to erect. Standard channels and fittings bolt together with a special spring-held nut...no welding or drilling required. UNISTRUT framing reduces installation and engineering costs, and you can use it over and over as racks or framing for almost anything!

Free Catalog!

Send today for your free copy of the 24-page catalog No. 600. Countless examples of how to build racks for every purpose.

U.S. Patent Numbers
2327537 2541908 2329815 2345650
2363382 2696139 2380379 2405631

Other patents pending

UNISTRUT PRODUCTS COMPANY
1013 W. Washington Blvd.
Chicago 7, Illinois

Please send without obligation items listed below:
☐ Catalog No. 600 ☐ UNISTRUT sample

Name

Company

Address

City Zone State

Circle No. 185 on Reader Service Card for more information



Dept. A-11



LEVER PENDENT CONTROL (illus.)

Also Push-Button or Cable Control

There's a speedy dependable

ARO

PRODUCTION AIR HOIST *to fit your job!*

2,000 lb.
1,500 lb.
1,000 lb.
500 lb.
300 lb.
100 lb.

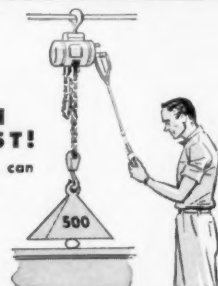
VARIABLE SPEED . . . 1000 lbs., 0 to 38' per minute . . . 2000 lbs., 0 to 20' per minute . . . load can be inched or zipped.

AIR-POWERED FOR SAFETY . . . no spark hazard . . . explosion-proof motor . . . can't burn out . . . can't overheat . . . unaffected by dust or fumes.

LIGHTWEIGHT . . . only 28½ lbs. for 1000 lb. hoist . . . 2000 lb. hoist weighs only 47 lbs. Overall length all models, 10½" to 11½".

TRY THIS WITH ANY OTHER HOIST!

You can inch so slowly that you can touch an egg without breaking it!



ARO

AIR HOIST

Also . . . Air Tools . . . Lubricating Equipment . . .
Aircraft Products . . . Grease Fittings

SEE YOUR ARO DISTRIBUTOR
THE ARO EQUIPMENT CORPORATION

Bryan and Cleveland, Ohio

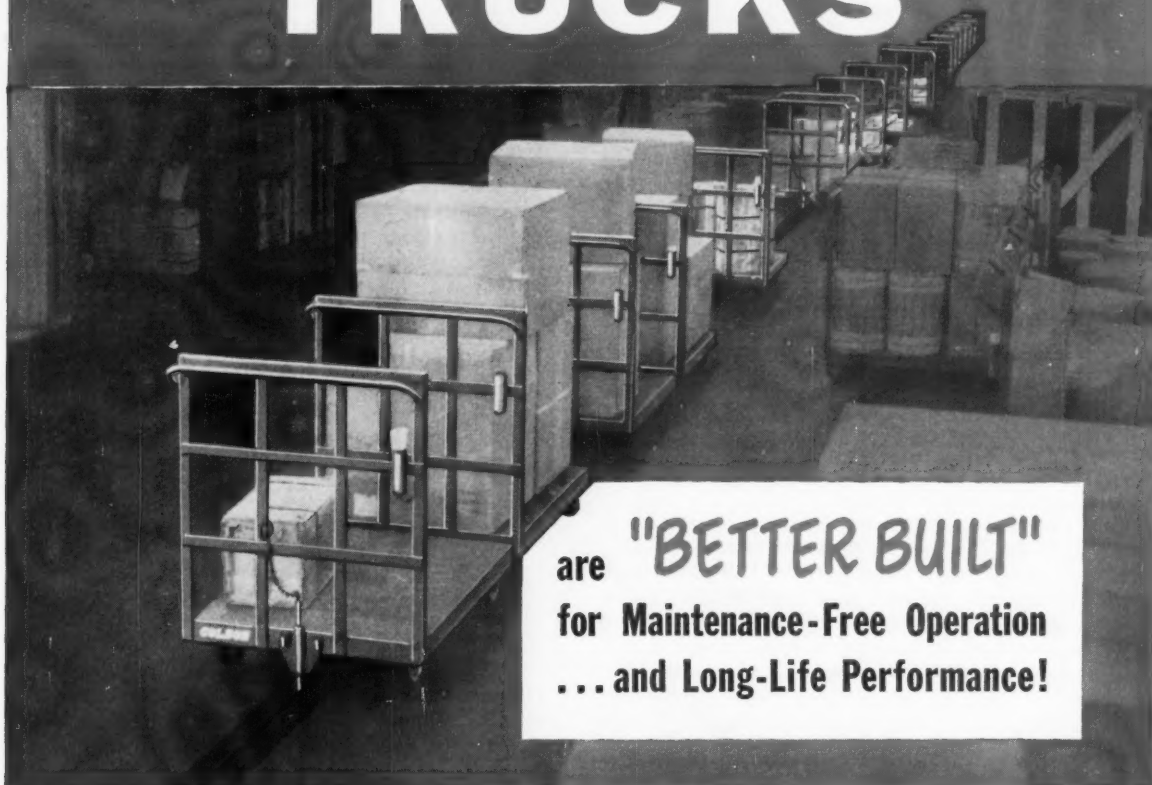
Aro Equipment of California, Los Angeles, Calif.

Aro Equipment of Canada, Ltd., Toronto 15, Ontario

Offices in All Principal Cities

Circle No. 19 on Reader Service Card for more information

COLSON "IN LINE" TRUCKS



are **"BETTER BUILT"**
for Maintenance-Free Operation
...and Long-Life Performance!

Typical installation at Motor Cargo, Inc., Akron, Ohio

COLSON "IN LINE" TRUCKS have been carefully engineered to assure that all parts are so well balanced in construction that the completed trucks provide years of trouble-free service on all types of conveyor line systems.

Features that insure this remarkable performance include the famous "PressWeld" Series Caster with a 1/4" thick plate, formed and welded into a one-piece heavy-duty fork . . . truck frames fabricated of heavy 3/8" formed plate bolsters and side sills

welded into a sturdy one-piece unit . . . and decks of 1" thick, kiln dried selected hardwood, free from knots and blemishes.

COLSON "IN LINE" TRUCKS are available in 3 platform sizes, with 4 types of running gear and 4 types of towing devices for either overhead or sub-floor towing.

Write us or consult your local phone book (under "Trucks: Industrial") for the COLSON office near you.

CASTERS • HAND TRUCKS • LIFT JACK SYSTEMS
HYDRAULIC, ELECTRIC AND MECHANICAL POWER LIFTS
AND TRANSPORTS

THE



CORPORATION

Elyria, Ohio

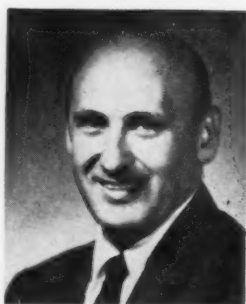
NOVEMBER, 1955

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MEN in the NEWS

At The Colson Corporation . . . **Norman A. Price** has been named vice president and a director. He joined Colson in 1952 and a year later became manager of wheel goods sales. In 1954 he was named assistant to the president, and retains the position of director of sales to which he was appointed earlier this year.

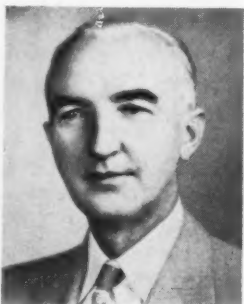


Norman A. Price

At Insley Manufacturing Corporation . . . Three new appointments were announced. **Fred B. Ray**, formerly vice president in charge of sales and a veteran of 34 years with the firm, was named vice president in charge of sales research and development. **R. J. Boatman** was appointed sales manager, and **C. W. Hoke** became advertising manager.

At Lamson Corporation . . . **William J. Fenwick** has assumed the position of controller, in which capacity he will assist Vice President and Treasurer **F. D. Weeks** in initiating, developing and administering policies of accounting. He will also be responsible for the development of methods and procedures for establishing proper controls of inventories, costs and expenses.

At Gar Wood Industries, Inc. . . . The newly created position of vice president and director of engineering and manufacturing has been filled by **Angus J. O'Brien**. Since 1949 he has served as vice president and director of manufacturing and the additional engineering responsibility is expected to more closely integrate and coordinate the manufacturer's two key operations.



Angus J. O'Brien

At Evans Products Company . . . Railroad division Vice President **Ben Colman** has been named president of the newly-formed Greenville-Evans Company, a facility for rebuilding and modernizing freight cars and leasing them to railroads on a per diem basis. Greenville-Evans will have general offices in Pittsburgh, and Evans will direct the firm's operations from his headquarters in Plymouth, Michigan.



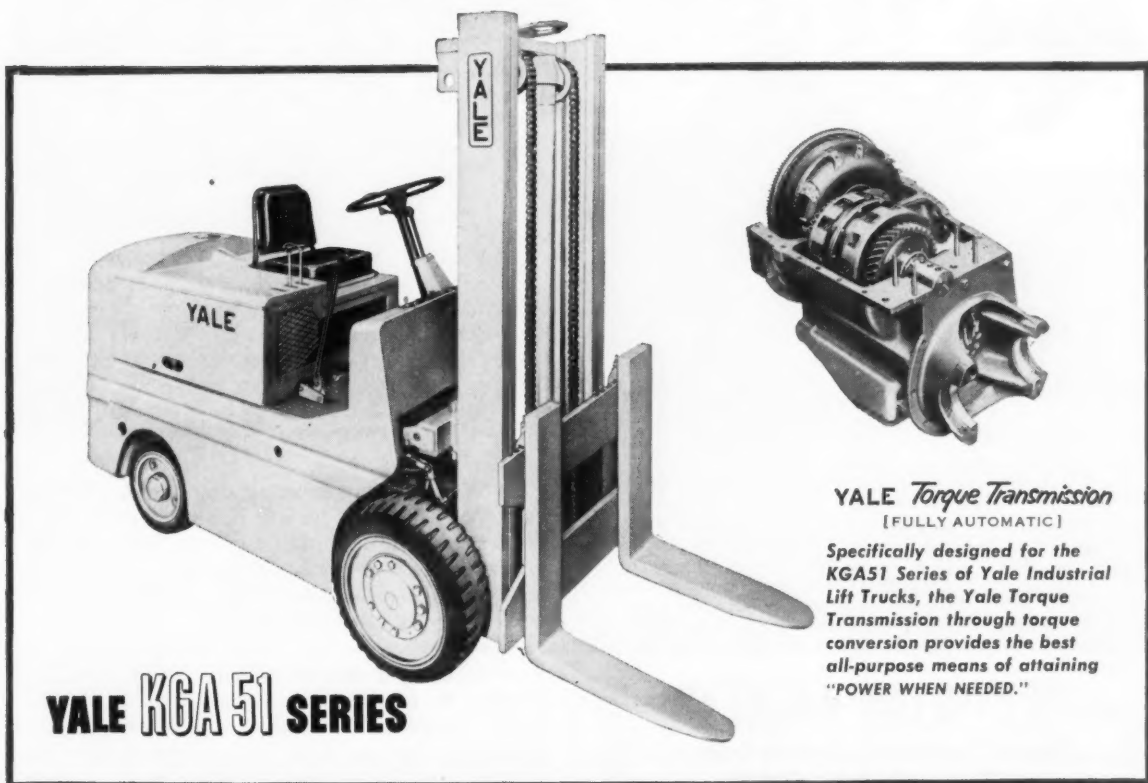
Ben Coleman

At National Vulcanized Fibre Co. . . . Formation of an operating board responsible for all management policies has been announced. The board is composed of nine company executives representing six divisions of the company. Chairman is **Eugene R. Perry**, president. **F. Irving Crow**, vice president and head of the company's Administrative division, is vice chairman. Members include **Robert M. Gottschall**, company treasurer; **William M. Harbaugh**, manager of the Kennett plant; **Roy S. Fisher**, sales manager; **Howard H. Street**, manager of the Fibre and Paper Division; **Gerald H. Mains**, director of research and development; **Gerard A. Albert**, manager of manufacturing; and **Henry C. Guhl**, manager of engineering.

At Motorola Inc. . . . **Irving Koss** has joined the company as administrative assistant to **Daniel E. Noble**, vice president in charge of the Communications & Electronics Division. He has held many responsible positions in the field of electronics and communications, most recently as a Major in the Signal Corps.

At Robertshaw-Fulton Controls Company . . . **R. S. Reynolds, Jr.** was elected chairman of the board to succeed his father **R. S. Reynolds, Sr.** who died July 29. The new chairman has been associated with the company since its formation, serving as a director and financial vice president. Elected to fill vacancies on the board of directors

The smoothest handling lift truck ever built



YALE KGA 51 SERIES

YALE Torque Transmission [FULLY AUTOMATIC]

Specifically designed for the KGA51 Series of Yale Industrial Lift Trucks, the Yale Torque Transmission through torque conversion provides the best all-purpose means of attaining "POWER WHEN NEEDED."

Ease and safety of a modern car... automatic response to power demand with **YALE Torque Transmission** [FULLY AUTOMATIC]

Automatic Power Control. Engineered exclusively for the KGA51 series, the YALE Torque Transmission matches power to power demand...applies the necessary power at the moment it's needed for starting or climbing grades under all load conditions.

Fully Automatic Transmission. Simplified controls increase operator efficiency, reduce fatigue. No clutch pedal or shifting of gears. Only two drive controls—accelerator and directional control lever.

Inching Control. Smoother and more accurate maneuvering of the truck is permitted at times when

high engine speeds are required to perform faster lifting or for an attachment operation.

Longer Truck Life. "Cushioned Action" of YALE Torque Transmission reduces vibration and shock loading with less wear on moving parts.

Increased Operator Efficiency. Lowered cowl affords maximum visibility with operator protection. Improved safety and comfort offered by lowered seat.

Versatility. Available in capacities from 3000 to 8000 lbs.... Gas, Diesel, or LP-Gas powered...cushioned or pneumatic tires.

FREE, FACT-FILLED BOOKLET



This informative color booklet includes cut-away of the KGA51 Truck—shows why this is the smoothest handling lift truck ever built. Write: The Yale & Towne Manufacturing Company, Roosevelt Boulevard, Philadelphia 15, Pa., Dept. 411.

YALE*

**INDUSTRIAL LIFT
TRUCKS AND HOISTS**

*REG. U. S. PAT. OFF.

Gas, Electric, Diesel, LP-Gas Industrial Lift Trucks • Worksavers
Warehousers • Hand Lift Trucks • Hand and Electric Hoists

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NOVEMBER, 1955

51

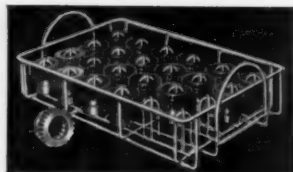
IT'S EXPENSIVE TO HANDLE PARTS **ANY OLD WAY!**



A large percentage of parts handled in makeshift equipment often ends up in the reject pile! You can eliminate damage and cut expensive rejects to a minimum with WIPCO Eezy-Stak baskets. Eezy-Staks protect parts in conveying, machining, washing, degreasing, assembly, storage and numerous other operations. In many cases, rejects due to handling are almost completely eliminated! Eezy-Staks will cut production costs in your plant too. Write today and let us know your parts handling requirements!

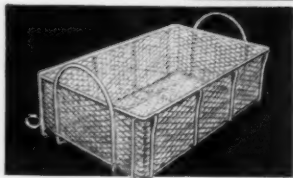
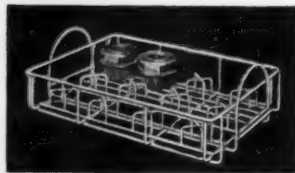
EEZY-STAK BASKETS

**Speed Production, Reduce Rejects
CUT HANDLING COSTS**



Individual compartments or racks are designed to accommodate any specific part for maximum protection in handling or storage.

All Eezy-Stak baskets have the patented "Interlock Handle, an exclusive design feature that permits easy, trouble-free stacking.



Standard Eezy-Staks, available in 1/4" or 1/2" flat expanded metal, are recommended where part segregation is not necessary.

WRITE TODAY FOR
BULLETIN B-54

SEND PART SAMPLES FOR
A PROMPT QUOTATION!

*Pat. No. 2646186



WIRE & IRON PRODUCTS, INC. 1720 Sixteenth St. Detroit 16, Mich.
Circle 198 on Reader Service Card for more information

MEN IN THE NEWS

Continued

were **J. Louis Reynolds**, vice president of Reynolds Metals Company, and **John A. Robertshaw, Jr.**, assistant vice president of Robertshaw-Fulton, in charge of foreign operations.

At **Hyster Company** . . . **H. Noel Dimick** has retired after 16 years as engineer in charge of Straddle Truck design and production. He first became interested in material handling in 1906 when he entered logging and mill operations, and was a pioneer in the development of the Hyster Straddle Truck and the fork lift truck.

At **Alan Wood Steel Company** . . . **J. Bremner Proctor** was named general manager of the new Penco Metal Products Division. Closely identified with the metal shelving equipment field for the past 12 years, Proctor previously was executive vice president of De Luxe Metal Furniture Co.

At **Wayne Manufacturing Company** . . . **William W. Kingman**, former mid-western district sales representative, has been transferred to the firm's headquarters in Pomona, California, where he will assist in administration of the industrial power sweeper sales program.

At **Nutting Truck and Caster Company** . . . **Clayton E. Johnson** is manager of the new west coast warehouse in Oakland, California. Employed by Nutting since 1947, at the time of his appointment Johnson was serving in the capacity of assistant traffic manager.

At **The Louis Allis Company** . . . The board of directors named **E. P. Allis**, president since 1945, to the post of chairman of the board, and promoted **John W. Allis** from vice president to president.

W. H. Overman Dies

W. H. "Bill" Overman died September 19 in Knoxville, Tenn. On July 1 he became director of sales for Brooks Equipment Company, division of Borg Warner Corporation, and had expected to move from temporary offices in Knoxville to Kalamazoo, Michigan, on January 1. He was an active member of the Caster and Floor Truck Manufacturers' Association, and it is said that through his personal efforts many worthwhile benefits accrued to the entire industry. Mr. Overman previously was manager of The American Pulley Company's Materials-Handling Division. He was 48 years old.

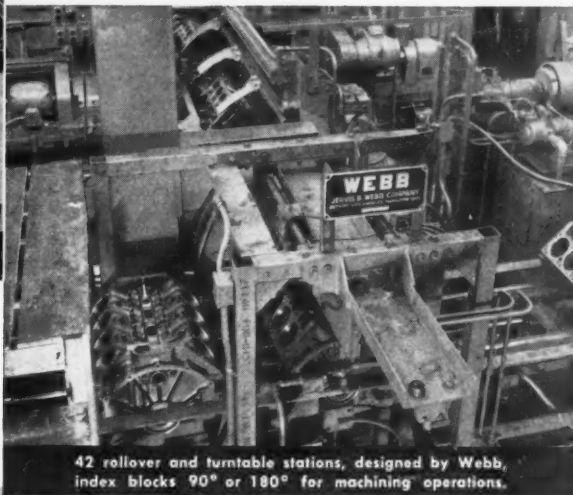
JERVIS B. WEBB

CONVEYOR ENGINEERING, MANUFACTURE, INSTALLATION and AUTOMATION



Webb Trolley Conveyors automatically transport parts and sub-assemblies to final assembly line.

MATERIALS HANDLING...



42 rollover and turntable stations, designed by Webb, index blocks 90° or 180° for machining operations.

Automation at Plymouth



Four miles of Webb Trolley type overhead transport conveyors have given the new Plymouth engine plant a higher degree of efficiency than they have ever had before. In engineering the layout for the new plant, Plymouth's goal was to achieve flexible and continuous production flow with a minimum of manual handling. Webb custom-engineered conveyor systems... 26 conveyor lines... have provided the answers for Plymouth.

Of particular interest is the high degree of automation designed by Webb engineers into the engine block production line. A Webb two-strand indexing type chain conveyor provides positive flow control for engine block production. Also, Webb engineers designed twenty rollover stations where engine blocks

are automatically rotated 90° or 180° on the vertical axis to put them into position for the next machining operation. In addition, twenty-two Webb designed turntables index the blocks 90° on the horizontal axis for another machining operation.

Complicated automatic control systems and the control panels were designed and built by Control Engineering Co., a subsidiary of Jervis B. Webb Co. These control panels furnish a visual check on material flow and the operation of the conveyor systems.

This installation is another example of how manufacturers are turning to Webb conveyor engineers for answers to their materials handling problems. Regardless of your needs—single line conveyor or a complete plant conveyor system—Webb engineering service will provide the economical and efficient answer to your materials handling requirements.

Write to us on your company letterhead and we will be happy to place your name on the Webb mailing list to receive factual technical information on conveyor installations, case history reports, and new product literature.

JERVIS B. WEBB CO.

Specialists in Custom Conveyor Systems

8935 ALPINE AVENUE • DETROIT 4, MICHIGAN

Offices and Representatives Throughout The World • FACTORIES: Detroit • Los Angeles • Hamilton, Canada
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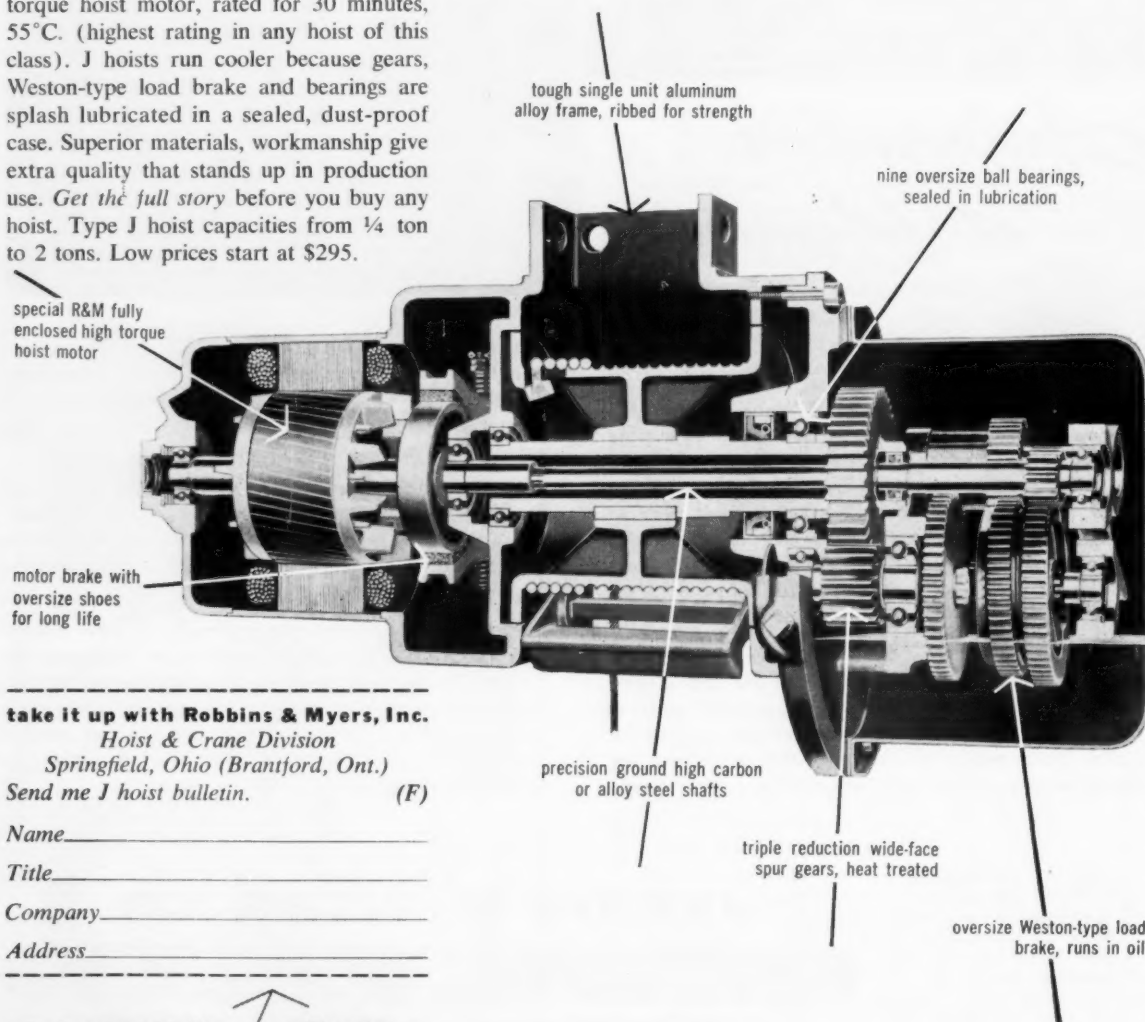
NOVEMBER, 1955

53



R & M J hoists give you the biggest quality lifting package at a reasonable cost, and here's why: First, there's no compromise on material—high strength carbon or alloy steel shafts and gears; tough, flexible plow steel cable; oversize bearings, load brake, and shafts—all last longer under punishing loads. No compromise on workmanship, either—each of the triple reduction spur gears is wide-faced, precision cut and heat treated; the motor is R&M's own high torque hoist motor, rated for 30 minutes, 55°C. (highest rating in any hoist of this class). J hoists run cooler because gears, Weston-type load brake and bearings are splash lubricated in a sealed, dust-proof case. Superior materials, workmanship give extra quality that stands up in production use. *Get the full story* before you buy any hoist. Type J hoist capacities from ¼ ton to 2 tons. Low prices start at \$295.

buy value you can see



take it up with **Robbins & Myers, Inc.**
Hoist & Crane Division
Springfield, Ohio (Brantford, Ont.)
Send me J hoist bulletin. (F)

Name _____
Title _____
Company _____
Address _____

ROBBINS & MYERS hoists • cranes • winches

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B.F. Goodrich

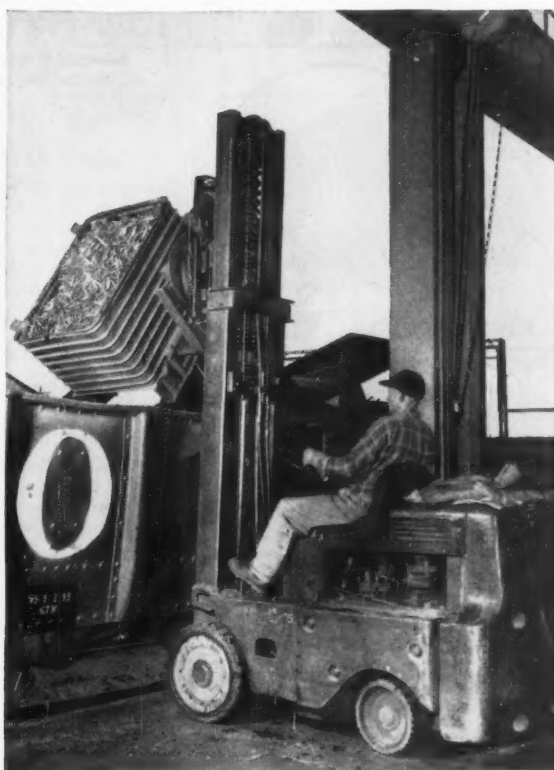
Industrial tires used 100% by bearing factory to keep production rolling



Trucks equipped with BFG tires deliver wire to Cold Heading Dept.



1600-lb. load of outer races leaves the Hand Screw and Press Dept.



Tires roll over sharp steel to dump scrap into rail car.

THE Bower Roller Bearing Company manufactures all types of bearings at its Detroit, Michigan, factory. 25 to 30 materials handling units operate in nearly every department, hauling raw materials, finished products and scrap. And all this equipment rolls on B. F. Goodrich industrial tires.

Why? Because, says Plant Superintendent A. F. Madison, B. F. Goodrich industrial tires do a better job of combating iron and steel scrap, oily floors and other tire hazards. Thanks to the B. F. Goodrich Tire and Wheel Analysis Plan, Bower equipment rolls on the right kind of tire—and that

means the company gets longer tire life, saves money.

How you can save money on industrial tires

Call your B. F. Goodrich Tire and Wheel Analysis man. He'll study your materials handling equipment, loads, hauling surfaces and any special problems you have. Then he'll recommend the right tires for you to use—the right size, tread design and tread compound. The recommendations he makes are unbiased, because B. F. Goodrich makes a complete line of industrial tires.

And this TW Analysis costs you nothing. Put your equipment on the right kind of rubber. It will save you money. BFG consulting service is also available to materials handling equipment manufacturers.

**Specify
B. F. Goodrich tires
when ordering
new equipment**



The B. F. Goodrich Company
Tire & Equipment Division
Department TW-545 Akron 18, Ohio

Please send me additional information
on your Tire and Wheel Analysis Plan

Name _____
Company _____
Street _____
City _____ Zone _____ State _____



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NOVEMBER, 1955

55



DUMPS ITSELF



RIGHTS ITSELF



LOCKS ITSELF

pays for itself!

It's the safe, sensible, economical way to handle wet or dry, hot or cold bulky materials. Simple, one-man operation does the job with amazing speed... cuts cost of hand unloading by at least 50%.

This rugged Roura Self-Dumping Hopper is built to withstand the terrific knocks and bangs of rough usage. Extra heavy gauge metal and welded construction mean years of dependable service. Fits any standard fork or platform lift truck. Also available mounted on live skids or with malleable or rubber tired casters. Sizes from $\frac{1}{2}$ to 2 cubic yards. Thousands in use in America's biggest industries.

ROURA Self-Dumping HOPPER

WANT MORE FACTS? Clip this coupon... attach to your letterhead... sign your name... and mail to...

ROURA IRON WORKS, INC.
1411 Woodland Ave., Detroit 11, Michigan

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56

Calendar of Events

November 8-10

4th Canadian National Packaging Exposition and Concurrent National Conference,
Automotive Building,
Canadian National Exhibition
Grounds,
Toronto, Ontario

November 9-11

19th Annual Time and Motion Study and Management Clinic,
Sherman Hotel,
Chicago, Illinois

November 13-18

75th Anniversary Annual National Meeting,
American Society of Mechanical Engineers,
Chicago, Illinois

November 14-17

Second International Automation Exposition,
Navy Pier,
Chicago, Illinois

November 14-17

International Soft Drink Industry Exposition,
Dinner Key Exposition Building,
Miami, Florida

Nov. 17-18

Iowa Products Show,
Veterans Memorial Auditorium,
Des Moines, Iowa

December 11-13

Material Handling Institute,
Statler Hotel,
New York, New York

December 12-16

International Atomic Exposition,
Public Auditorium,
Cleveland, Ohio

December 14-15

Industrial Truck Association,
Statler Hotel,
New York, New York

January 23-26, 1956

Plant Maintenance & Engineering Show,
Convention Hall,
Philadelphia, Pennsylvania

June 5-8, 1956

The Material Handling Institute's
Exposition of 1956,
Public Auditorium,
Cleveland, Ohio

WRITE for
this new way
to drive down
handling costs



Here is the swift, silent way to lower materials handling costs, efficiently speed personnel from one task to another. All for as little as three cents a day! Westcoaster Electric Cars were designed with industry in mind. They're tougher by far than any other leading $\frac{1}{4}$ to $\frac{1}{2}$ -ton capacity cars. Operation is safe and quiet as a cat, free from costly maintenance and repairs. Get all the time and money saving advantages of owning Westcoasters.



WEST COAST MACHINERY, INC.
1801 E. Charter Way, Dept. E
Stockton, California

Please rush your brochure on Westcoaster Electric Industrial Cars.

Name _____
Address _____
City _____ State _____
By _____

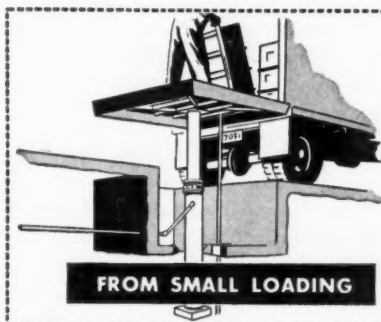
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FLOW

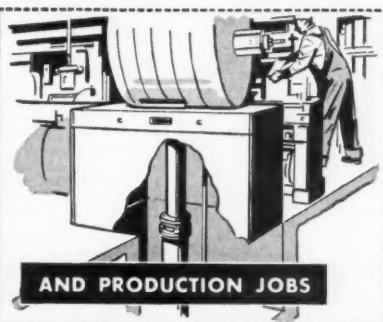
wherever the need...
whatever the size...

GLOBE OiLIFTS

QUICKLY INSTALLED...QUICKLY RETURN THEIR COST!



FROM SMALL LOADING



AND PRODUCTION JOBS

TO LOAD MACHINES

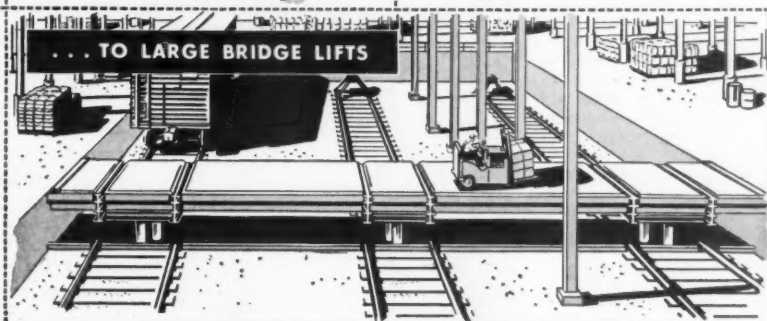
(Left) Globe OiLIFTS position bulky materials to speed production of machines and processes.

TO CROSS A DEPRESSED AREA

(Below) Synchronized hydraulic cylinders raise giant Globe bridge lifts from railroad track level to loading dock height, permitting two-lane traffic of heavily loaded fork trucks.

TO LOAD TRUCKS

(Above) Where no loading platforms are available, Globe OiLIFTS quickly raise heavy loads to truck bed level. In "down" position, platforms are flush with floor, permitting free cross travel of men and vehicles.



... TO LARGE BRIDGE LIFTS



Whether the load is 1,000 lbs., or 50,000 lbs. . . whether the lift is a few inches or 50 ft. . . the Globe OiLIFT which does the job is assembled with standard production line components. Oil-hydraulic cylinders, platforms, power units and control systems are available . . . stress and performance tested . . . for initial low cost, early shipment and quick installation.

So, whether you want to cut costs in truck loading, eliminate the hazards of a ramp, route traffic across recessed railroad tracks, or any of countless lifting or materials handling operations, there's a readily-available OiLIFT to do the job.

The free book: "Case Studies in Modern Lifting" tells what other firms in your industry are doing to speed lifting work and cut costs. Write for your copy today.

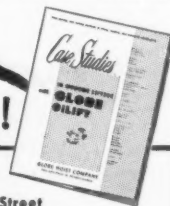
GLOBE

OiLIFTS

PLANTS: DES MOINES—PHILADELPHIA—LONG BEACH, CAL.



Get your
FREE COPY today!



GLOBE HOIST COMPANY
East Mermaid Lane at Queen Street
Philadelphia 18, Pennsylvania

Please send me additional information on Globe OiLIFTS as described in the FREE booklet "Case Studies in Modern Lifting."

Name.....
Company.....
Address.....
City..... State.....

F-705-PL

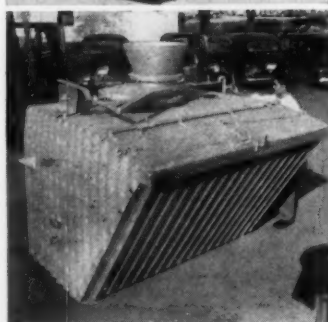
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Briefly, this ad illustrates why DEMPSTER-DUMPSTER SYSTEM

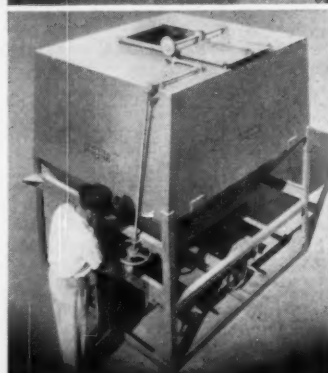
Container at right has cast iron bottom and inside walls are lined with fire brick. It handles hot skim off aluminum.



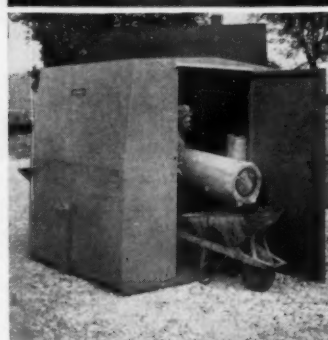
This Tilt Type Container was the result of a cost-cutting idea whereby a high temperature dusty product would be handled by a plant's Dempster-Dumpster. Container has cooling fins, counter-balanced hinged lid with 3-way locking device, 16" sliding gate valve and two sight-glass inspection openings.



Here is a Hopper Type Container with a top door for filling and two bottom discharge doors operated by rack and pinion. Another case where the Dempster-Dumpster System was applied to an additional problem to further reduce costs.



Container at right is just one of several different types we have designed to handle equipment, materials, packages, parcels, etc.



IN A NORMAL INSTALLATION the Dempster-Dumpster System is purchased by a plant because of its proved record for handling bulk materials at tremendous savings. This normal installation usually includes one truck mounted Dempster-Dumpster and any number of standard containers designed to meet the various requirements within the plant. In some cases, containers number 40 to 50. These containers can range in capacity up to 21 cu. yds., with all containers served by the one Dempster-Dumpster.

In the great majority of cases this basic installation is just a starter. Management men, constantly looking for lower operating costs, find numerous and amazing extra savings in the Dempster-Dumpster System. Once in service, transporting developments of every description come to light that supplement the original functions of the equipment. Your own men find easier, quicker and additional cost saving ideas for its use. Many even overshadow the original savings and the equipment becomes more and more indispensable.

Look over just a few of the "Special" containers illustrated in this ad. They are all the result of rough ideas that originated with the men in plants after a basic installation, then developed by our engineers. All ideas were stimulated by the powerful Dempster-Dumpster and its flexibility in picking up, hauling, setting down or dumping anything that needs transporting, at lower cost.

One man, the driver, and a few simple hydraulic controls in the cab of a Dempster-Dumpster, will become indispensable in your plant. It is just that in hundreds of plants of every description throughout the nation. Let one of our representatives give you details of installations. Manufactured exclusively by Dempster Brothers, Inc.



Above container is built with cast iron liner. The holes in outer wall are for cooling.

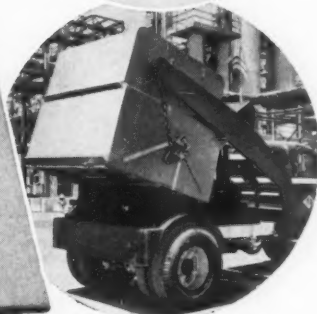
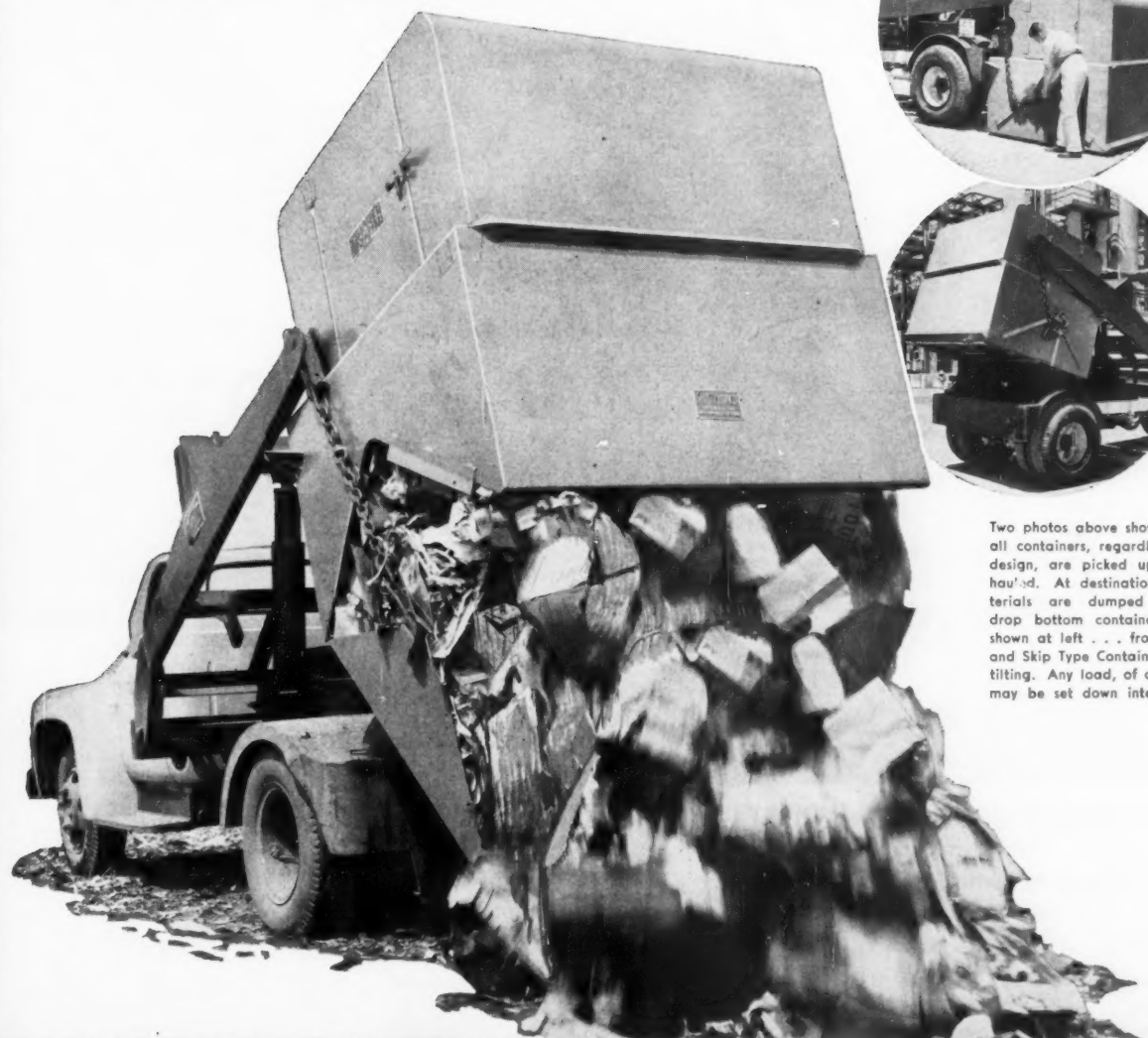


Here is one of several special drop bottom type containers equipped with couplers and ball bearing trucks for operation in train on rails.



DEMPSTER BROTHERS

so many plants find the indispensable...



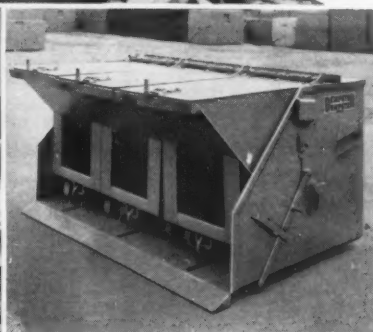
Two photos above show how all containers, regardless of design, are picked up and hauled. At destination materials are dumped from drop bottom containers as shown at left . . . from Tilt and Skip Type Containers by tilting. Any load, of course, may be set down intact.



This is a special adaptation whereby waste slurry is pumped into two containers, which serve as settling tanks, enabling majority of the water to be decanted before sludge is transported and dumped at waste basin.



Tank Type Containers are available with or without casters in steel, aluminum, stainless steel, etc. Capacity ranges up to 1,200 gal. They may be lined with rubber, lead, highly resistance coatings, etc.

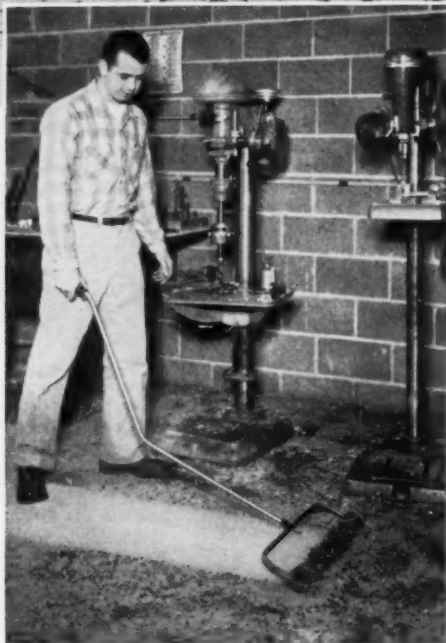


This is a master container with three 2 cu. yd. insert containers. Each insert container is provided with casters, counter-balanced spring-hinged lid for loading and dumping.

6115 Shea Bldg., Knoxville, Tenn.

NOVEMBER, 1955

MAKE A CLEAN SWEEP



SAVES TIME AND MONEY!

Prevents accidents!

Promotes better "housekeeping"!



MODEL D-8

\$35²⁵

5 low-price models
for every application.

with this new rotary **MAGNETIC BROOM**

Keeps work areas safe, clean—picks up all ferrous scrap, nails, parts, chips, etc. Offset handle permits sweeping inaccessible areas.

Greater-than-ever carrying capacity — rotary action loads full 360° of magnet. More "reaching out" power—permanent magnets guaranteed forever!

No batteries, no electric wires—nothing to get out of order or replace. Water-proof and oil-proof.

Exclusive wiper ring unloads broom instantly and effortlessly. Automatic inertia brake prevents unwanted rolling.

10-DAY FREE TRIAL! Try a Magnetic Broom in your plant for 10 days at no cost or obligation. Write for details today!

MAGNETOOL

DIVISION OF MULTIFINISH MFG. CO.

26341 West Eight Mile Road • Dept. 367 • Detroit 19, Michigan

Circle No. 139 on Reader Service Card for more information



Report on the 15 cu. ft. MICHIGAN 12B:

New Tractor Shovel features power-shifting, twenty per cent more weight and power

Heavier and more powerful than comparable machines, and infinitely easier to operate—that's the new MICHIGAN 12B. There's no clutch pedal or engine clutch on the 12B: Clark's power-shift transmission completely eliminates this notorious cause of excessive maintenance and down time. From the cutting edge of the 15 cu. ft. bucket to the flywheel of the 44 or 42 horsepower engine (gas or diesel), the MICHIGAN 12B is simply *more* machine.

20% more weight and power. At 6250 lbs. (6350 lbs. diesel), the 12B is 20% heavier than most machines in its class. With 44 or 42 horsepower, gas or diesel, it is 20% more powerful. This margin of weight and power, plus bucket break-out action, enables the 12B to dig its way into material where other machines merely spin their wheels. The 12B's extra weight, low center of gravity and low-level bucket carry-position contribute to its superior stability: you can handle maximum loads safely and fast within its short turning radius.

Instant power-shifting. Engine torque is multiplied up to 300% by the Clark torque converter—automatic torque build-up as you meet tighter, tougher materials. To shift between High, Low or Reverse, simply push the single power-shift lever to the desired position. Hydraulic power in the constant mesh power-shift transmission makes any shift instantly, even when travelling. There's no clutch pedal,

no engine clutch, no gear clash. And as any operator will tell you, *it sure beats riding a heavy clutch all day!*

Complete dust protection. The 12B is protected against dust and dirt in every conceivable way. An oil bath air cleaner filters the air which enters the main hydraulic reservoir. There is a filter for the torque converter oil and the power-shift transmission oil. A partial flow filter protects the engine lube oil. Transmission, torque converter, starting motor and generator are all dust-sealed. On the 12B, every precaution has been taken to avoid dust problems.

Make your own comparison. Neither words nor specifications can indicate the working superiority of the new MICHIGAN 12B. You've got to see it in action—see it handling your toughest job. Call your local MICHIGAN distributor or write us direct to arrange an on-the-job demonstration. The new 12B is available on a low cost, no-down-payment Lease Plan—ask for details. Whether you lease or buy the 12B, it will pay for itself faster than any Tractor Shovel you've ever seen. See it!

MICHIGAN is a trade-mark of Clark Equipment Co.

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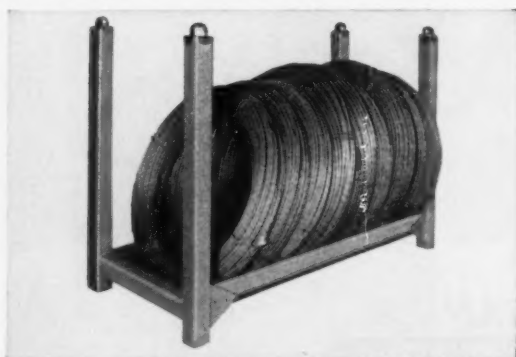
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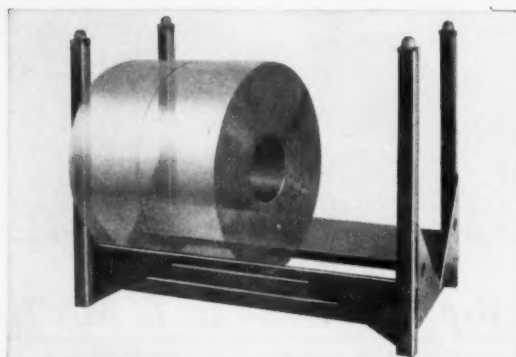


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When you "stack up" with American Tubular Storage Racks, you also "stack up" savings. The ingenious and simplified American feature, "erected without bolting or welding," has made them first choice with many businesses both large and small. American Racks are designed to meet practically every storage need. Send for catalog and get the facts on American before you buy any type of rack.



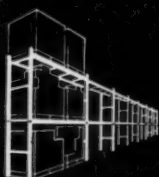
WIRE STOCK RACK
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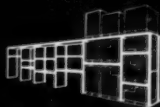
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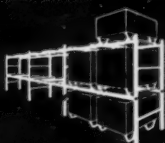
There's an American Rack for every storage need



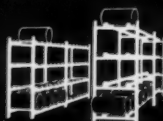
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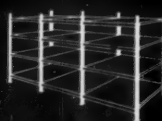
Adjustable Pallet Racks



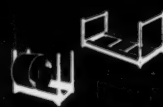
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handling of a 500 lb. load of tote boxes is easy with the

Economy Walkie-Worklifter



Jule Betley, foreman at Midwest Electric Manufacturing Corp., says — "Our Walkie-Worklifter is proving very satisfactory in every respect. Moving and storing finished parts is now a one-man job instead of a two-man job and is done in a fraction of the former time."

Take away the backbreaking lifting jobs with a Walkie-Worklifter and production automatically moves faster.

Thirty-nine standard models in platform or adjustable fork styles with lifts up to 110 inches take care of most jobs. Specials can be built for special requirements.

Only \$1205.00 buys this narrow platform Walkie for handling tote boxes.

Our representatives are qualified to discuss your handling problems with you and make recommendations. Mail coupon for prompt service.

Quick Facts

Walkie-Worklifter lifting capacity 1,000 lbs. Welded structural steel construction. Batteries and built-in charger included.

Standard platform models will pass through doorways and turn sharp corners in narrow aisles.

A safety feature—2-way brake action applies brake automatically if handle is released or pulled forward beyond normal operating angle.

Platform models with lift of 60" to 110". Straddle base fork models with lifts up to 108".

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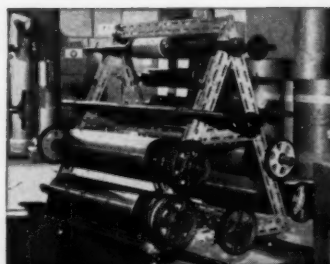
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how many uses for **DEXION** in your plant?



RACK



DINING TABLES



STORAGE



DIE RACKS



TABLE AND BINS



FILING TABLE

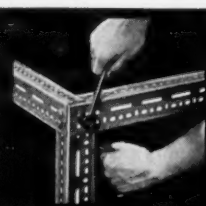


DEXION Slotted Angle is a packaged product, ten pieces to a package, each piece 10 feet long. There are three types, with dimensions of 3" x 1½" x .080"; 3" x 1½" x .104"; 2¼" x 1½" x .080".

Easy to store. DEXION package occupies approximately 1 cubic foot of space



Easy to cut. One stroke of DEXION cutter saves time.



Simple to connect. Use only two wrenches.



DEXION panels. For shelving to support heavy loads.



Re-usable. Dismantle—re-build into other equipment.

Here's why you'll want DEXION Slotted Angle over any other framing material

Only your imagination limits the applications of this ingenious slotted angle framing material. Users discover that they can build whatever they need—when they need it—and build it cheaper! Easily dismantled, DEXION Slotted Angle can be reused in new ways to meet changing needs. There's no waste! And anyone who can use a wrench and a saw (or DEXION cutter) can build with this precision-made slotted angle.



GET the exciting new DEXION IDEA BROCHURE, which gives you full information. Write direct to the address shown below, Dept. 11-B.

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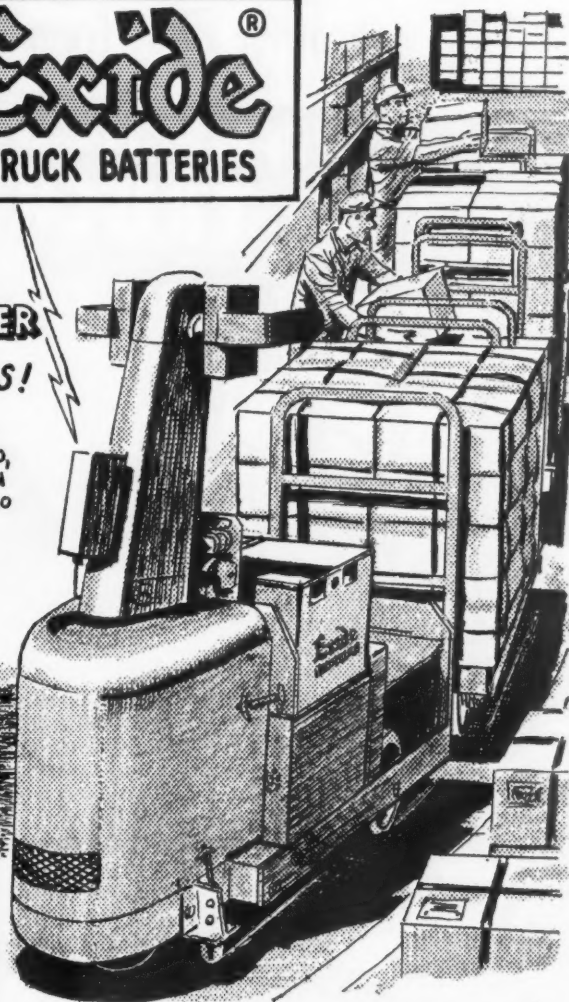
**ACME
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FACTS ABOUT Exide®

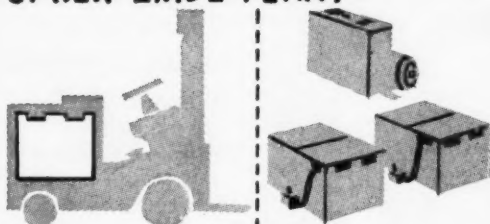
IRONCLAD® INDUSTRIAL TRUCK BATTERIES

**MOVE MORE MATERIALS...CHEAPER
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NEW EXIDE-POWERED BARRETT TRACTORS, REMOTE CONTROLLED, MOVE MATERIALS THROUGH WAREHOUSES AND PRODUCTION AREAS AUTOMATICALLY...NO OPERATORS ARE NEEDED! RADIO WAVES BEAMED DOWN FROM AN OVERHEAD WIRE DO THE JOB. FOR THE DRIVERLESS TRUCKS OF THE FUTURE, OR THE HIGHLY EFFICIENT ELECTRIC TRUCKS NOW IN USE, DEPENDABLE EXIDE-IRONCLADS FURNISH AMPLE POWER, DO IT FOR YEARS AT LOWEST PROVED COST FOR OPERATION, DEPRECIATION AND MAINTENANCE. EXIDES ARE ALWAYS YOUR BEST POWER BUY—**AT ANY PRICE!**



**NOW! CASH OUTLAY FOR
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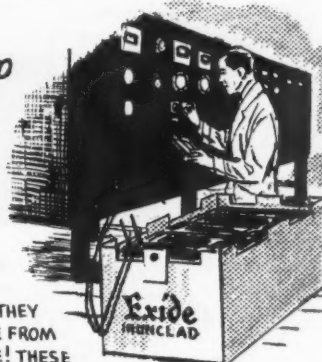


BUY ONLY THE TRUCK CHASSIS! CUT INITIAL CAPITAL OUTLAY AS MUCH AS 33⅓%!

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IN ADDITION TO THE SUPERIOR OPERATION OF ELECTRIC TRUCKS YOU GET BIG ANNUAL SAVINGS. A TYPICAL EXAMPLE OF HOW MUCH YOU SAVE EACH YEAR WITH ELECTRIC TRUCKS AND THE EXIDE PLAN:
1 TRUCK ON 3-SHIFT OPERATION SAVES \$1425.76!
MAKE US PROVE THESE SAVINGS! CALL YOUR EXIDE SALES ENGINEER. ASK YOUR ELECTRIC TRUCK SALESMAN. WRITE FOR COMPLETE DETAILS ON THE EXIDE LEASING PLAN!

**WORKED TO DEATH TO
LEARN SECRET OF
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LAB TESTS OF IRONCLADS AGAINST CONVENTIONAL BATTERIES SHOW THAT THEY PERFORM BETTER...HAVE FROM 20% TO 30% LONGER LIFE! THESE FACTS, DEMONSTRATED BY THOUSANDS OF BATTERY USERS, EXPLAIN WHY EXIDE-IRONCLADS ARE YOUR BEST INDUSTRIAL TRUCK BATTERY BUY—**AT ANY PRICE!**

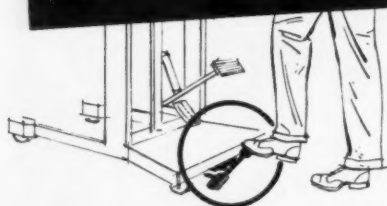
LET EXIDE HELP SOLVE YOUR INDUSTRIAL TRUCK BATTERY PROBLEMS. ① CALL AN EXIDE SALES ENGINEER FOR FULL DETAILS. ② WRITE FOR FORM 1982, A MANUAL ON INSTALLING AND MAINTAINING MOTIVE POWER BATTERIES.

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.

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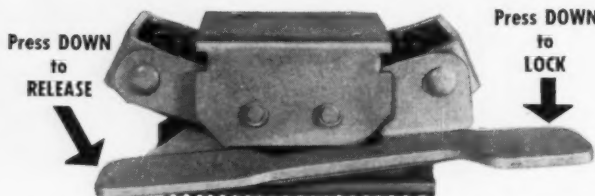
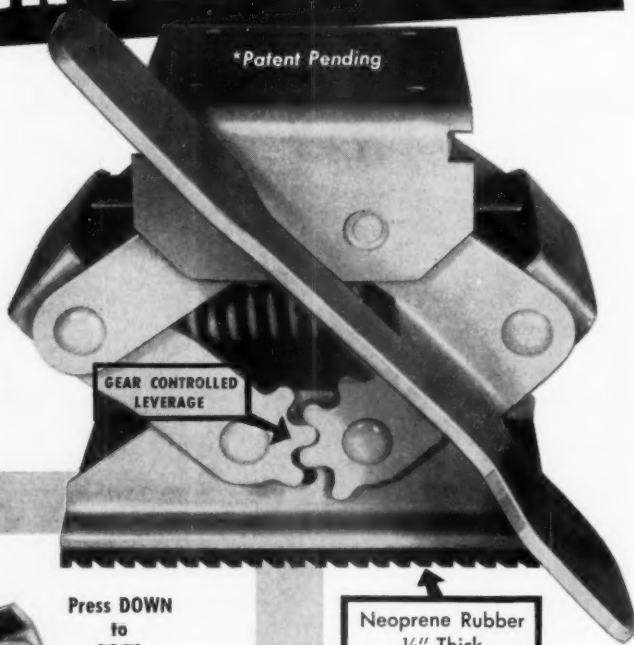
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THE NEW PRESTO* 5-in-1 TRUCK FLOOR LOCK



The only truck floor lock of its kind available. It's new, it's different, it's revolutionary. Makes all other truck floor locks obsolete.

Use the new PRESTO 5-in-1 Truck Floor Lock with 3", 4", 5", 6" and 8" casters. One PRESTO Truck Floor Lock fits five sizes. Ideal for use on: Scaffolds, portable benches, tool stands, floor trucks, lifters, work stands, portable scales, portable conveyors, engine stands, etc.



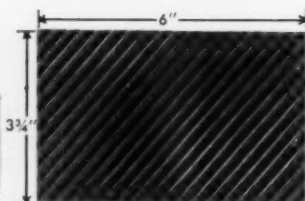
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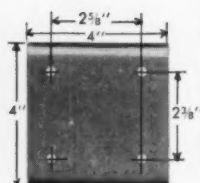
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- ☐ Mounting plate drilled and tapped — can be welded
- ☐ Mounting height can vary
- ☐ Light in weight, strong, durable, trouble-free
- ☐ Will work where others fail



Adapter Bracket
for use with 8" casters



Traction Plate
Large gripping surface
made of moulded neoprene
rubber



Mounting Plate
Hole centers drilled
and tapped 3/8"-16

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Reduce your inventories
— one floor lock fits five
size casters.



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Are You Losing Profit in Plant Warehousing?

It could be! . . .

There's greater gain potential in the modernization of a storage system than management usually suspects. To discover and exploit it requires only logical, forthright, unbiased thinking in terms of profit objectives.

By R. J. Witherspoon,
Methods Engineer, Midwest Research Institute



ENLIGHTENED management is looking more and more critically at warehousing methods, which directly affect company profits. It sees that there is no reason why the warehousing operation should not be viewed in the same light as are production operations. More and more it recognizes that the man whose entire day is spent lifting and moving by hand represents high cost.

Today, many of the jobs that not too long ago required human judgment have been reduced to routine mechanized operations, thereby freeing the man to do work of a still higher order. Two examples of this are the automatic elevators now being installed in many tall buildings, and the numerous loading and unloading cycle controls that pick up or deposit material either at predetermined stations or by responding to various signals set at the work stations.

The usual comment regarding many new methods or equipment is "That costs money", or, "That's fine in big outfits".

Stop a minute and reconsider. Take another look at your total annual labor costs for handling. Now ask yourself, "Is our business really so small and are our costs so low that we can't afford to invest in cost-cutting equipment?"

As an example, a typical, relatively new idea to consider is the two-way radio system that has, on proper application, increased productivity per fork truck 50

per cent and more—for an increased investment of about 10 per cent of the fork truck cost. Taxicabs, which cost perhaps \$1800, are now generally equipped with two-way radios. If a fork truck represents an investment of \$4000, would it not make sense to consider a two-way radio system to better utilize this investment? This example is used not to recommend two-way radio but to illustrate the justification for what seems to be an expensive item. The real cost, when actually determined and compared with results obtainable, no longer seems out of line.

Let's assume that you are willing to start thinking more seriously along the lines of modernization—what now?

What does the President or Manager see at the end of the quarter or year? Total receipts, total paid out—the difference is profit. This is the figure that is important—not total sales, but total profit. If we can show a profit on our warehouse operations comparable to our sales profit, why not do it? We'll get into the business of *handling* our products as well as making or selling them.

Now, let's sit down and make some money—by laying down a course to follow and forming a plan to survey your handling problems with an attitude that will allow and require you to be realistic. The results will be well worth while.

(More on next page)

"Does any one individual have the time, the responsibility, and the authority to work for more profitable handling?"

Does your organization have a well defined method or procedure that is followed to constantly search for improvement in material handling? Or is there a good outline buried in a file or in the back of someone's mind? Is this type of work thought of as a job to be done when there is slack time? Does any one individual have the time, the responsibility, and the authority to work for more profitable handling.

The lack of real warehouse planning is probably more prevalent than most warehouse managers would like to admit. There are, no doubt, many good tentative or half completed plans for improvement that never get out of the outline and talking stage until "a fire breaks out."

Perhaps the best barometer with which to measure your own performance is the pressure from competition. If you are constantly striving to meet competition rather than to *be* the competition, if you usually are trying to bring your operation up to theirs, you are almost certainly in need of improvement. If the converse is true, you have probably somewhat recently modernized your system. But if you find yourself in the less well defined and more encompassing region in between—what then? This is the more difficult situation to resolve, and the most concrete basis on which to proceed is the standard cost comparison.

An evaluation of your present costs versus the most economical proposed-system costs—showing cost of handling per unit, day, or year, or a figure that indicates return on investment or pay out period—will show how you stand in comparison with how you might ideally stand. If a proposed handling system will completely pay for itself in three years, the return on the dollars invested is 33-1/3 per cent. Isn't that a good investment?

This is to illustrate how a company that is in business to show a profit will do well to consider making

that profit by reducing operating costs as well as selling merchandise.

Any proposed method should be thought of first in terms of ideal potential—and not immediately discarded because, "It doesn't look good", or "It costs too much", or "I don't like it". The clinching argument often heard is that, "we have to maintain a budget". Maintain a budget on what—profits? Certainly not, but when sales are down most people are reluctant to spend money. And isn't that just the time when increased profits are most needed.

Just how does one go about studying a warehousing system? First, we must acknowledge the need for a study and have an earnest desire for it. Second, we must be willing to devote an ample amount of time and concentrated effort to see the study through to completion. Unless a fairly broad and comprehensive study can be made, the net result will be a partial solution, and can miss the mark badly by not uncovering the real problems.

Solution is Complete System

The important, basic philosophy which should be maintained throughout the study is that the solution is to be a complete system, tying together all phases of the operation—not a group of small unit solutions gathered together to form the overall picture. There are bound to be the peculiar and special little problems within the system, but these should be handled not in order of individual unique character but, rather, in order of their weighted effect on the entire system.

A common example of this unweighted solution is in the warehouse crammed to the rafters, squeezing to minimum aisles, thereby making the most of available space. Further, detailed investigation may show more money is lost in the increased cost of moving merchandise in and out than is saved by economizing on space.

A few current and the milder, long standing trouble spots probably stand out in your mind—and you are tempted to put too much emphasis on these individual phases of the overall problem. This can be partially avoided by taking an analytical viewpoint to gain a better perspective of the whole problem.

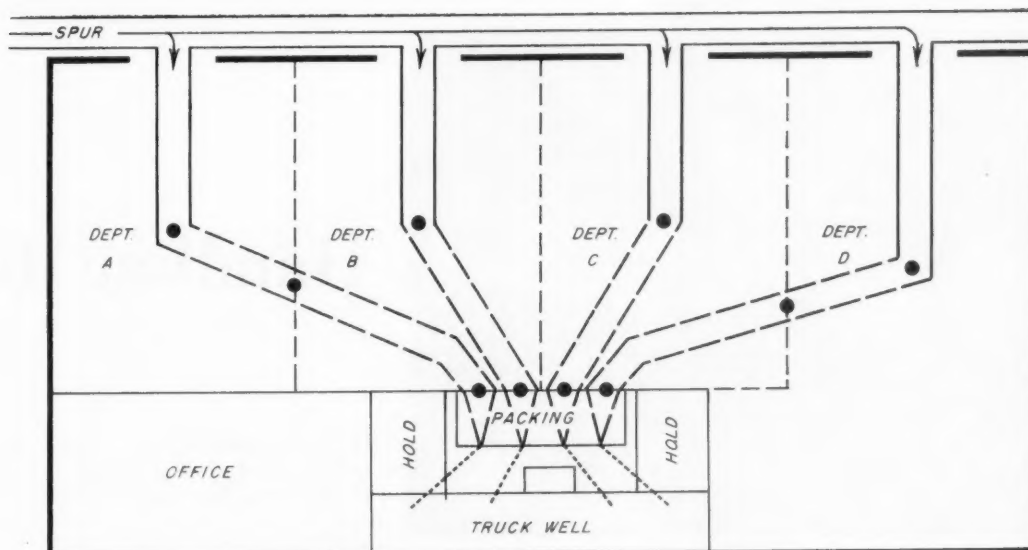
What is needed as a starting point? Facts, facts, and more facts. It is sometimes quite awakening to write down all the little bits of information available, regardless of how superfluous they seem and how well you think you know them. Digging up factual information, writing it down in some quantitative form, and organizing all of it into an outline will serve to point up the real problems. The system will uncover many poor practices, take the various phases of your operation out of the vagueness of general impression, and reduce to absolute values all considerations which can be made tangible.

Consider, for instance, the determination of the capacity of a conventional-type fork truck to be purchased for handling palletized merchandise in a warehouse. The information about the products—size,

OUTLINE OF FIXED WAREHOUSING CONDITIONS

1. Product—sizes, shapes, weights, quantities, rate of turnover, method of packing, need for protection
2. Plant—area, floor loading, ceiling height, overhead obstructions, column size and spacing
3. Equipment—specifications, book value
4. Orders—format; number per day; maximum, minimum and average number of items per order; physical bulk of average order; percent completed, mixed and unmixed; dollar value per order; sales picture, past, present and future expectations

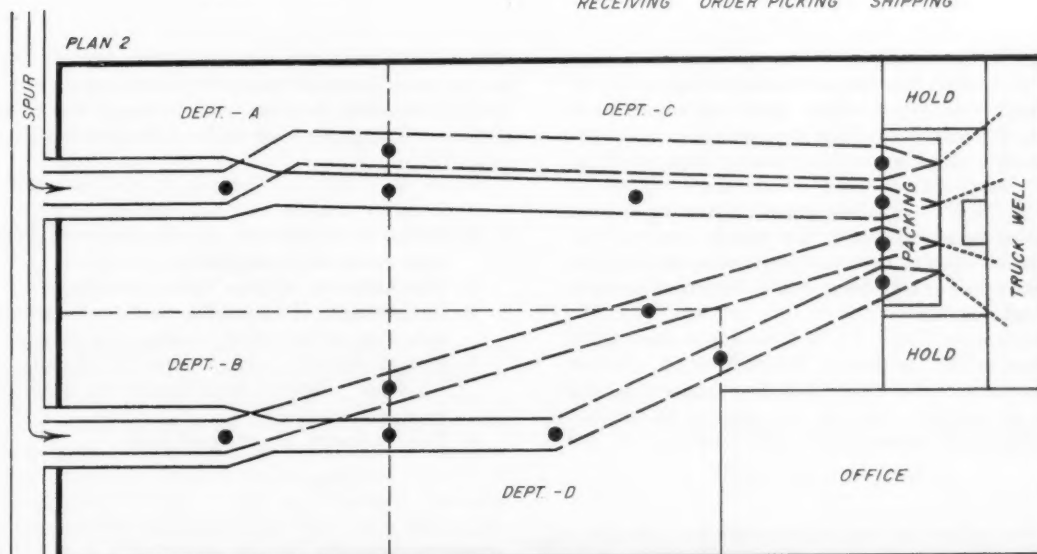
(Continued on page 134)



PLAN 1

SCALE 1" = 100'

RECEIVING ORDER PICKING SHIPPING



PLAN 2

TRAVEL DISTANCE COMPARISON

	Plan I	Plan II			
Receiving	Dept. A 100'	100'	Order Picking	Dept. A 210'	400'
Travel	B 100'	100'	Travel Distance	B 120'	415'
Distance Info:	C 100'	365'	To Packing From:	C 120'	195'
	D 160'	300'		D 180'	220'
	Total 460'	865'		Total 630'	1170'

$$\text{Ratio of total travel Plan I} = \frac{460}{865} = 187$$

$$\text{Ratio II} = \frac{1170}{630} = 1.86$$

	Plan I	Plan II	Ratio II/I
Total Travel	Dept. A 185'	400'	2.16
(Rec'g. & Order Pkg.)	B 345'	405'	1.17
Within:	C 335'	860'	2.57
	D 230'	370'	1.61
	Total 1095'	2035'	1.86



HOT SAND moves up a three-degree incline as water is added to cool it and plows (left) help agitate and turn it. Discharge is over a permanent magnet.

Handling by

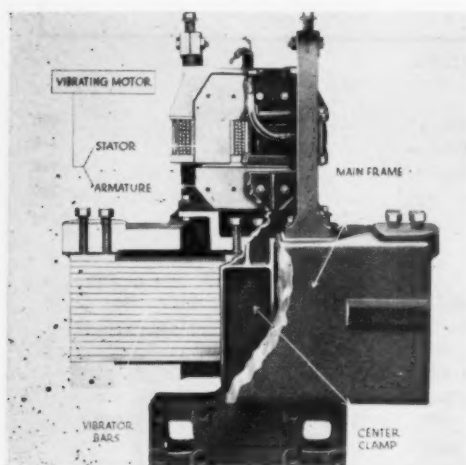
WITH increasing need for the continuous and controlled flow of bulk materials has come an increasing number of designs, types, and capacities of vibratory material handling equipment.

Actually, vibrating conveyors have been used for many years. Patents filed in the United States as early as 1850 record the principle. Vibrating conveyors using wooden supports and springs were in commercial use during Lincoln's presidency. And a shaking conveyor has long been used underground to carry coal and minerals.

Shortly after World War II there was an appreciable increase in the number of installations of vibrative equipment in foundries for handling hot castings and sand, in machine shops for the disposal of turnings and chips, and around steel mills handling hot and

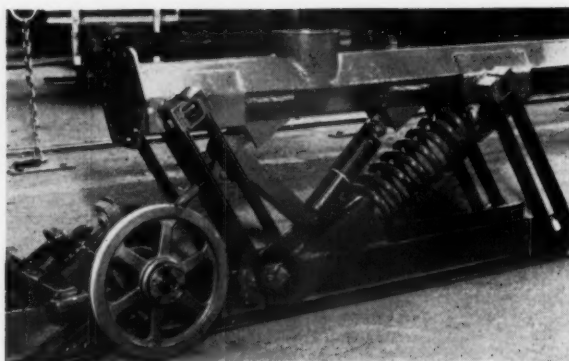
cold bulk materials—to mention a very few. As new designs were developed, potential uses grew. Now, vibrating equipment is being used by more and more industries having need for some of its qualifications, which follow:

1. Ability to handle very hot material.
2. Ability to convey very abrasive material, with wear moderate to negligible.
3. Elimination of spillage during handling.
4. Combination of conveying with such process operations as screening, cooling, and drying.
5. Ease of cleaning a trough—especially important for daily cleansing requirements in handling food products.
6. Easy enclosure of conveyed load.



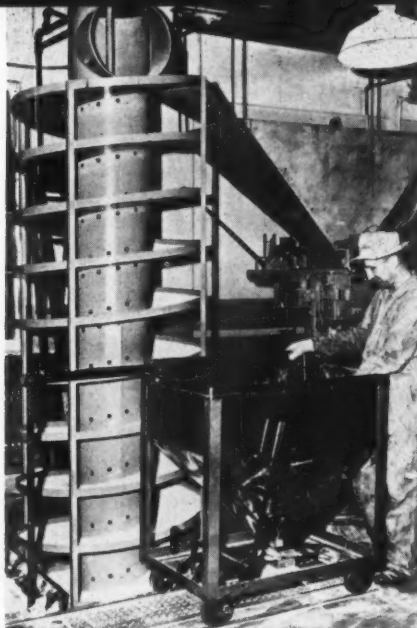
LEFT: Elements of electric vibrator power unit.

BELOW: Mechanical (tubular) vibrating conveyor.



VIBRATION

First section of a two-part study of vibratory equipment, this considers design, construction and applications for conveyors. Feeders will be discussed in a subsequent issue.



PLASTIC POWDER cools in 12-foot spiral conveyor (equivalent to 96-foot length) as exhaust draws air across and below flights.

7. Simplified maintenance—with bearings, for example, usually in one location.
8. Self-cleansing—important for batch control.
9. Minimization of product degradation during handling.
10. Isolation of moving parts, such as bearings, from materials.
11. Accurate control of material, as in weighing and proportioning processes.

Conveyors, Feeders and Conveyor-Feeders

There are currently two principal types of vibrating equipment, and a third which is gaining in attention. The first two are the conveyor and feeder; the third is a unit which combines features of both—into the conveyor-feeder. In principle, all are similar. They comprise a trough or tube on flexible supports, vibrated to move bulk materials or objects. Vibratory action is obtained either mechanically or electrically. Where produced mechanically, it is accomplished through an eccentric, revolving element. Electrically induced motion comes from a balanced power unit, which creates interrupted magnetic "pulls".

A vibrating conveyor system may be as long as a plant or process requires. It is usually designed to convey material at a fixed rate, horizontally or on inclines up to nine degrees. It can be arranged in steps or helices to reach any height that might be required.

The vibratory feeder is designed with a trough just long enough to keep the material, at natural angle or

repose, from spilling out of the end when the feeder is idle. The equipment must incorporate control for the rate of feed over a wide range—and hold it closely—without requiring the varying of a bin or hopper opening or any mechanical alterations to the feeder.

Conveyor-feeders move materials or objects at adjustable rates over longer distances than do feeders—from about 10 feet to 30 feet or more. Usually, the rate does not have to be as precisely controlled as that of a feeder, but for many applications this equipment adequately satisfies requirements for conveying and feeding.

Types of Materials Handled

Some 400 kinds of bulk material and many objects—

(More on next page)



MODERN FOUNDRY employs mechanical vibrator conveyor with pan two feet wide, 80 feet long, to handle mold sand. Elimination of spillage is important.

Continued

such as castings and parts—can be conveyed by vibration. The accompanying list indicates the scope of bulk currently handled. The principal requirement is that the material be not sticky or tacky. Weight is no barrier to handling by vibration, nor is temperature when equipment is designed for a given maximum.

Installations now in use handle materials with densities ranging from five to 400 pounds per cubic foot, and in sizes from powder to five foot cubes. Capacities, where not otherwise specified, are usually based upon a dry, free-flowing material weighing 100 pounds per cubic foot.

Vibrating equipment has handled materials as hot as 2000 degrees F. (approximately) and as cold as 30 below zero. Wet materials which are free of sticky talc or clay can also be moved by vibration.

Ground sugar with 50 percent moisture content, for example, is being conveyed. Clay mix having 12 percent moisture has been handled.

Vibrative equipment is especially well suited for handling gaseous, abrasive materials—like iron, lead and zinc sinter or other toxic substances—which can be enclosed within a conveyor by tube or other housing to minimize a hazard potential. Where very high temperatures are involved, decks may be water-jacketed.

Highly abrasive, corrosive, and wet or sticky materials can be handled by vibrative conveyors having replaceable liners of mild steel, stainless steel, aluminum—or whatever special metal or alloy might be required for a given purpose.

Process Applications

Screening is one of the earliest process applications combined with vibrative conveying. Usually, the fre-



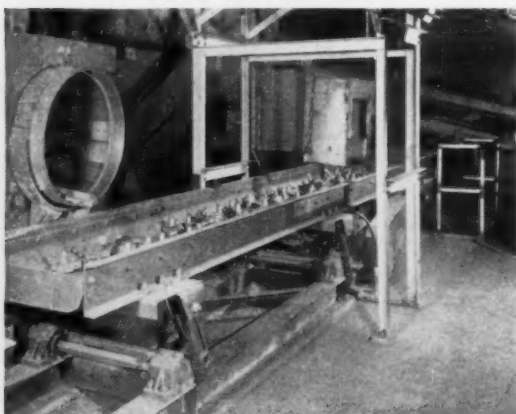
DOUBLE-DECK mechanical vibrator, 200 feet long, handles steel turnings on top and cast iron chips below. Last 20 feet inclined 2 deg. to drain oil.

quency and stroke used on vibrating conveyors are selected to give the maximum conveying speed rather than the optimum screening efficiency. But when material is to be conveyed a fixed distance, the installation of additional screen cloth—to produce results comparable to those on a regular vibrating screen—can frequently be sufficient to give the required sizing.

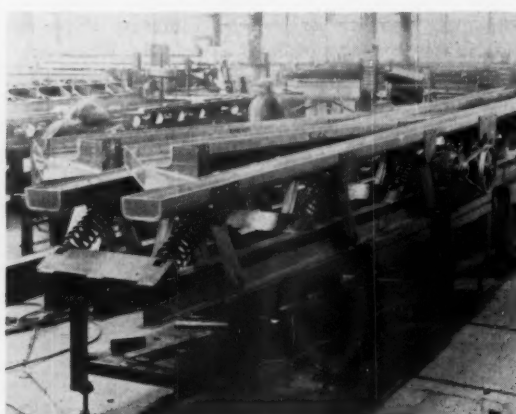
Vibrating conveyors are also combined with grizzlies or perforated plates—in foundry and similar applications—where there is a large difference between sizes of particles to be separated.

Conveyor-feeders are frequently used in sampling operations, and for dividing the flow of material among a number of discharge points.

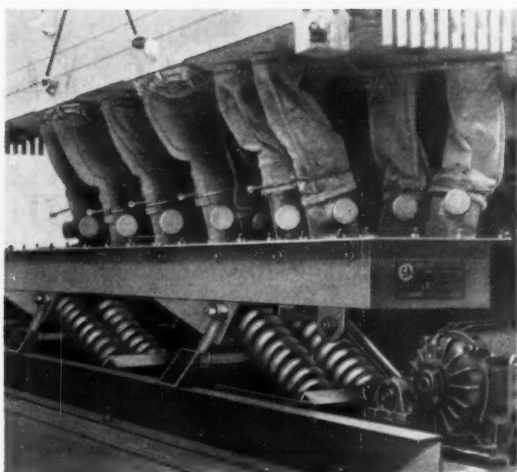
Either heating or cooling may be combined with conveying by vibration. Hot air can be blown through a bulk material, for example, or heat can be applied



CASTINGS handled in foundry by oscillating conveyors. Vibrative equipment now moves materials with densities to 400 lbs. per cu. ft., sizes to 5-ft. cubes.



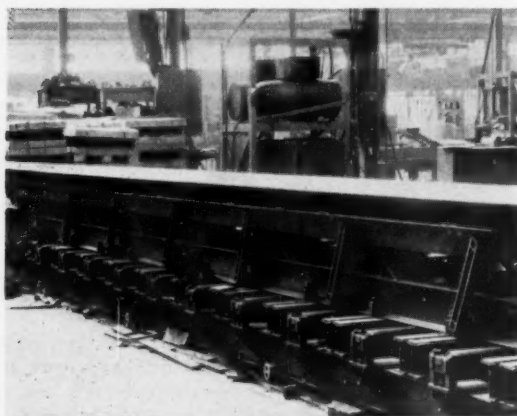
DRYING 3600 lbs. per hr. of clay mix is to be function of this equipment. In four 30-foot passes, material will move back and forth beneath radiant gas burners.



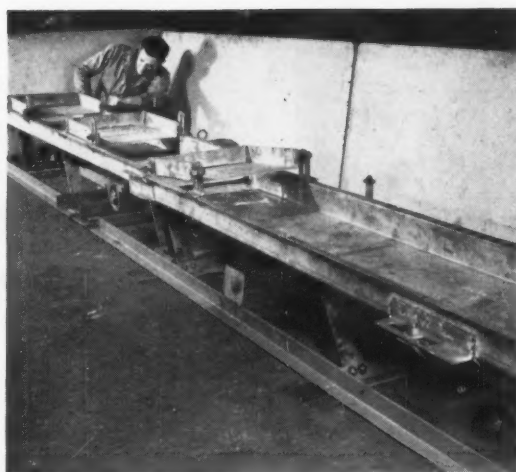
ENCLOSED oscillating conveyor prevents contamination as well as escape of highly abrasive silicon carbide, handles 40 tons per hour in 2-foot pan.

through steam coils. Cooling can be accomplished by similar devices. A conveyor may be arranged in a spiral so that material is exposed to surrounding air for long periods. Cooling water is frequently sprayed on the underside of a conveying deck. It is also possible to keep water in a conveying trough for quenching heavy objects, conveying them out of the water while they still retain enough internal heat to dry them.

A totally enclosed pen conveyor has been successfully used to convey and cool powdered, instant coffee. The conveyor moves the product from the evaporator. The unit is equipped with flexible connections used to introduce cooling air. An air current is forced through the conveyor against the flow of the material, thus accomplishing the cooling without balling or compacting the product.



REMOVABLE PAN on extra-heavy duty equipment designed for foundry. Brackets welded on pan are bolted to continuous angles on each side of conveyor.

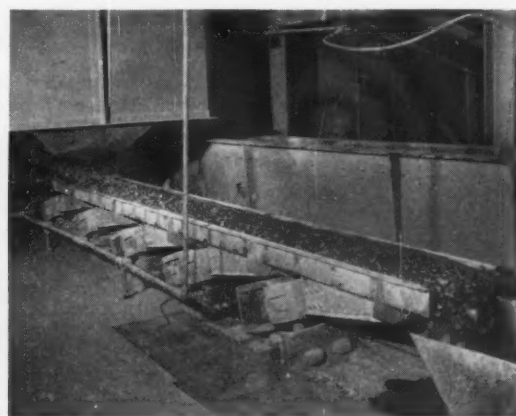


EQUIPPED with adjustable feed plates, vibrating conveyor distributes incoming loads from hoppers, eliminating obstructions to flow at progressive feed points.

Conveyors and conveyor-feeders can be constructed with multiple decks, incorporating perforated plates, screen sections and numerous discharge spouts. For example, an installation screens debris out of sand through a top deck and distributes it evenly over a silo with the bottom conveyor. The sand is divided into equal parts by baffles and each part is discharged at various points along the conveyor, thus providing even distribution over the silo. With similar installations, products are conveyed, separated by size of units, and delivered, by size, to designated bins.

Where aeration, agitation, or inspection of bulk materials are involved, the turning action of the vibrating conveyor is of great value. As shown in an accompanying illustration, a 3x36-foot conveyor moves hot sand from two shake-outs up a three-degree incline to

(Continued on page 156)



ELECTRIC vibrating conveyor, two feet x 20 feet, carries shells into the kiln of a cement plant. This type equipment allows easy control of flow rate.

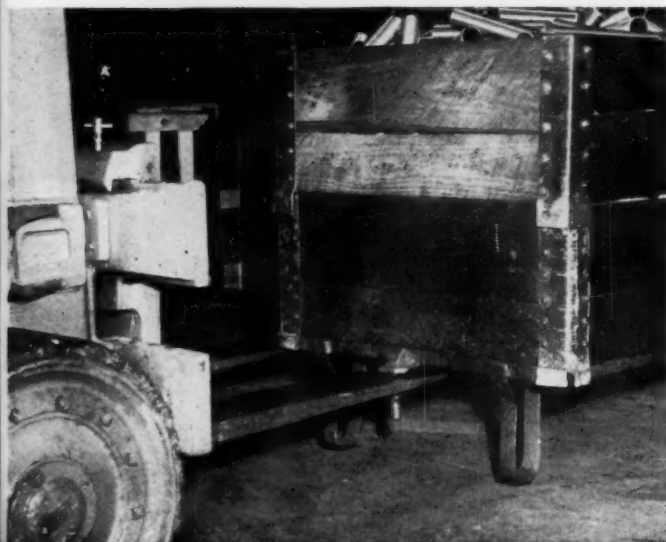
LP-Gas Conversions Lower Operating

An insurance-approved tank plant, installed for \$500, provides



TANK for LP-Gas mounted behind driver seat of truck, which handles dump cart used in scrap collection.

EXTENSIVE use made of LP-equipped trucks shown in pin-hitch arrangement for towing semi-live skids.



CONVERSION of five lift trucks from gasoline to LP-gas has cut fuel costs 40 percent and maintenance expense 50 percent at the Burgess-Norton Mfg. Co., auto parts manufacturer of Geneva, Ill. B-N officials estimate that, overall, these savings amount to \$700 per year.

The first of the trucks was converted in May, 1954; the others about six months later. Fuel consumption has been about the same as with gasoline, but the 40 percent lower cost of LP-gas—achieved partially through bulk fuel delivery and storage—means a saving of approximately \$235 year in and year out, officials explained. A \$50 annual saving comes from the fact that a quart of oil lasts a great number of operating hours in the propane-fueled truck. When gasoline-powered, trucks were figured to require about two quarts a week, and a crankcase had to be flushed and refilled approximately every 80 operating hours. Now the same trucks run at least 250 hours between oil changes, and they need only two quarts added per month. Even after this longer period in the crankcase, oil is much cleaner when it comes out. The company anticipates a reduction in major overhauls will contribute substantially to cost reduction.

LP-Gas has already extended the life of spark plugs about 50 percent and eliminated an occasional source of trouble by dispensing with the fuel pump. Since LP-Gas is under pressure in the lift truck tank, it provides, in effect, a built-in pump.

New and Old Trucks Converted

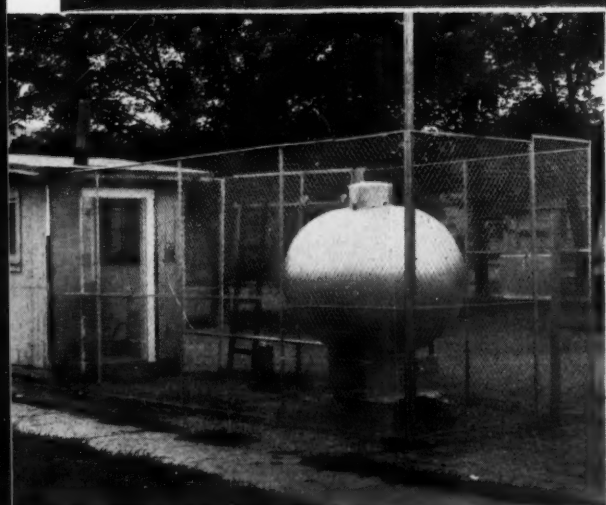
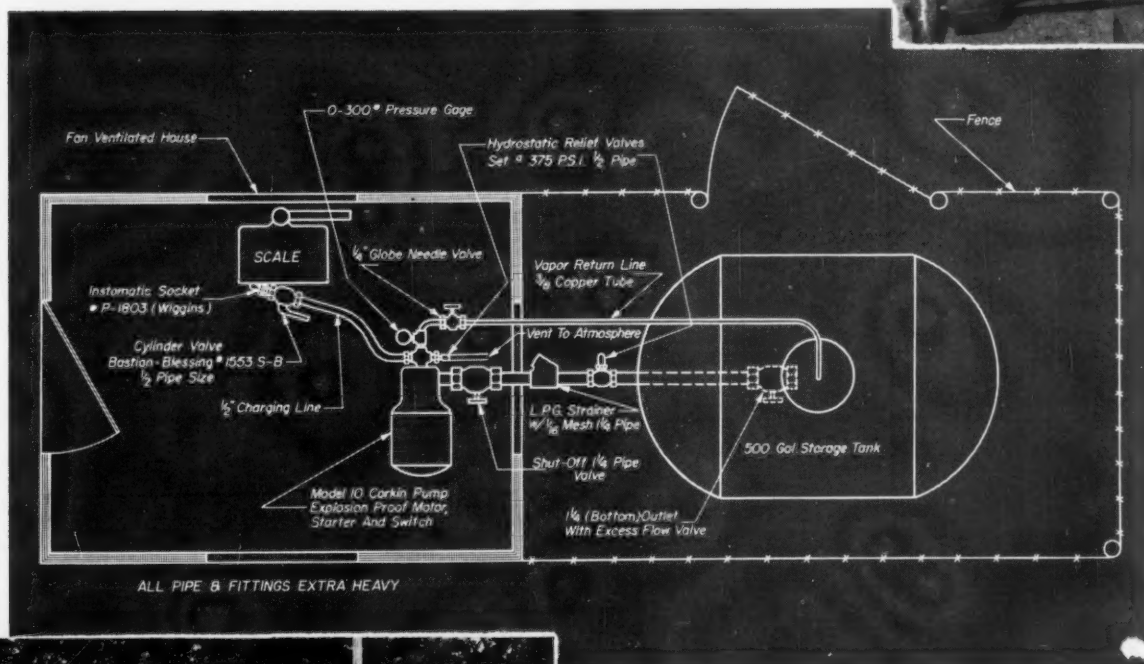
The five units Burgess-Norton has converted include both new and old models, which perform a wide variety of jobs. Three of 2000 pound capacity were built in 1950, 1951, and 1952, respectively. The others are 4000-pound units of 1951 and 1953 vintage.

For the five trucks, Burgess-Norton keeps eight filled tanks in ready reserve. There are three five-gallon tanks for the one-ton capacity units, five eight-gallon tanks for the larger trucks. The containers are stored in a wooden rack located just outside a loading platform door roughly midway between each end of the plant. Each operator replaces his own tank. The

(Continued on page 132)

Cost 40%, Maintenance 50%

for bulk delivery and storage, which reduce annual cost by \$235.



TOP: Tanks are loaded on 500-lb. capacity scale. Weight readings determine when tanks are full.

ABOVE: LP-Gas fueling plan, approved by insurance company, includes two hydrostatic relief valves.

LEFT: Fence enclosed bulk plant includes 500-gallon storage tank, enclosed pumping facilities.



BUSY SCHEDULE of crane at Minster Machine Co. starts at 8:00 every morning with unloading of slag from the cupola at firm's foundry. Slag is picked up by discharge water from fly-ash arrester atop cupola and carried, in granular form, into perforated basket set in sump (visible under rear-end of crane). As basket is swung over to dump truck, excess water is allowed to wet scrap pile to reduce dust for charging operations.



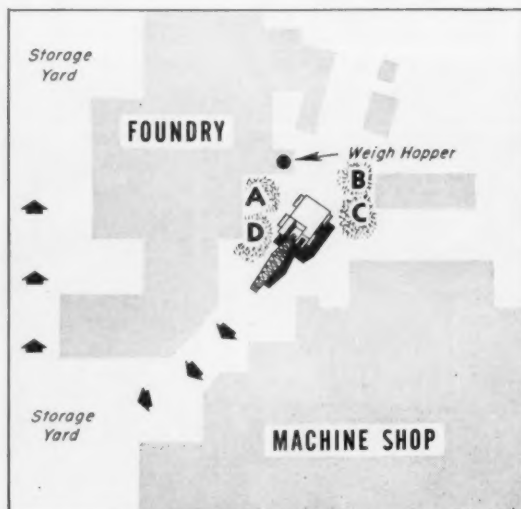
CUPOLA CHARGING is primary task of crane. At 1:00 p.m. it snuggles between piles of scrap and pig, adjusts magnet to swing precisely over weigh-hopper and loads ingredients until 4:00 or 5:00 p.m.

Yard Crane:

SPEED AND CONVENIENCE were the two characteristics most desired by the Minster Machine Co. in equipment for outdoor material handling. This Minster, Ohio, firm, nationally known as a builder of power punch-presses, had most of the material handling difficulties of machine builders—plus a few more.

First, both basic materials and parts in-process are heavy and large. Second, the layout of buildings on the plant site severely cramps operations.

Minster operates a foundry as well as a machine shop, where castings are finished and presses assembled. Castings weigh as much as 31,000 pounds. Weldments go as high as 43,000 pounds. The firm has three principal outdoor jobs—storing materials for the foundry and charging the cupola, storing castings, and processing scrap. Areas for these operations are widely separated. Between the storage yard and cupola are a number of buildings. The scrap yard is a third of a mile from the plant. Handling is further complicated



LAYOUT OF YARD shows charging position of crane and route it must take to storage yard. Piles in front of cupola are: (A) foundry returns; (B) high-chrome scrap; (C) standard pig; & (D) high-silicone scrap.

Six-in-One Handling Unit

by close proximity of buildings and consequent narrow passages for vehicles.

To accomplish the diverse jobs at these locations—and provide transportation for heavy loads between them—Minster has installed a 30-ton, pneumatic-tired crane.

Although this equipment is used principally to charge the foundry cupola—a job it does for three to four hours every afternoon—it performs many other material handling functions, among which are:

a. Moving large steel castings to and from yard storage.

Normal procedure is to store new castings outside, temporarily, until they are needed in production. Then the crane picks up a required casting—by hook and sling—and puts it on a manually-propelled rail car. This is moved into the plant. As soon as the casting is inside the door, an overhead traveling crane picks it

up and carries it to the first operation. Thus the yard crane is occupied directly in production-handling.

b. Handling scrap.

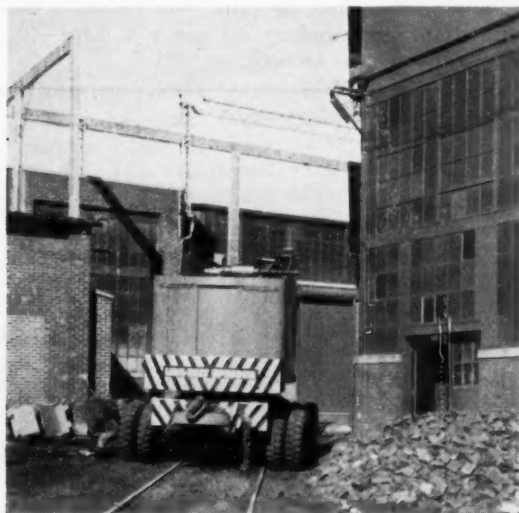
Approximately every two days, the crane travels to the scrap yard to load the trucks that will replenish the stock of scrap at the cupola.

c. Unloading slag from the cupola.

Normally, in foundries, slag is permitted to run into a vat, where it becomes a solid mass. Minster has developed a method in which discharge water from the fly-ash arrester is discharged into the front slagging spout of the cupola. Slag is carried, in granulated form, down into a sump, and discharged into a large, perforated metal basket within the sump. The water is recirculated to the arrester.

When emptying slag into trucks, the crane lifts the

(More on next page)



NARROW ROADWAY is only available route between foundry yard and storage yard. Good maneuverability permits crane to practically "snake" its way through driveway winding among several buildings.



OVER-HEAD BUS-DUCTS are another obstacle encountered by crane as it travels to storage yard. In spite of the tight fit, the crane moves over this route quickly and safely. This is usually last move of day.

basket, allows excess water to drain onto a scrap pile—to reduce dust in subsequent charging operations. The slag unloading job is done once a day, at 8 A.M.

d. Handling foundry sand.

The clam-shell attachment is used in unloading and stock-piling sand.



IN THE STORAGE YARD, the crane is a full-fledged member of Minster's handling team. Heavy castings and weldments must be moved into the machine shop for first steps in manufacture of punch-presses. In the yard, crane picks up weldment and swings it over to . . .

e. Unloading pig from gondolas.

Demurrage is kept to a minimum as the crane and magnet quickly unload pig iron from rail cars.

f. Miscellaneous maintenance work.

Among tasks which the crane has performed have been the following: (1) Moving equipment around when a plant layout is changed (operations restricted to parts of the plant having sufficient overhead clearance); (2) Aerial work—crane was used to install outside, overhead bus-ducts; (3) Lifting heavy equipment to a second floor, through a fire-escape door (i.e., portable fire-proof vaults for blue-prints).

"Snakes" Around Plant

Because of the extremely narrow driveways, the crane must practically "snake" its way along driveways that wind around and between buildings. And because of overhead wires and bus-duct work, the boom must be kept down.

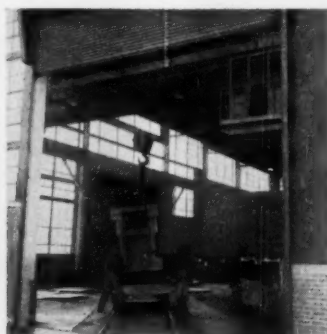
Since the crane was obtained by Minster as a material handling device—which would not only lift but also carry heavy loads from place to place—no outriggers are used. The thirty-ton capacity provides the stability and a short turning radius (26 feet, 3 inches) supplies the required maneuverability.

Most of the benefit derived from the equipment has been in added speed and convenience, but costs have been shaved as well. For example, prior to the purchase of the crane, five or six men used skids and rollers to inch a heavy weldment or casting from the yard all the way into the plant. Now the job is done with three men—working not nearly as hard—in a fraction of the time formerly required.

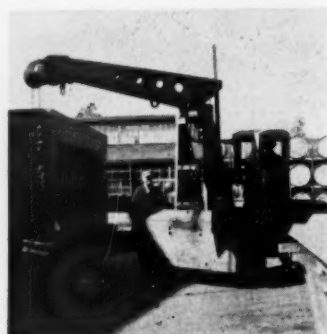
For assistance, FLOW thanks Flack Equipment Co. and Link-Belt Speeder Corp.



RAIL-MOUNTED FLAT CAR which is on slight incline. After weldment is set in place, it is moved into the plant where . . .

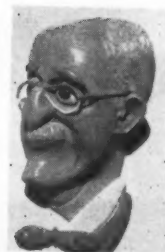


OVERHEAD CRANE picks up weldment and transfers it to first machining operation. Formerly, 5 or 6 men were needed for this job.



MOBILE CRANE with rigid boom is used to move lighter weight castings into plant. For smaller items, fork trucks are often used.

How to High-Stack Glass



By William H. Meserole

THE MECHANICS of tiering loads of fragile products are no problem today. But one does find a problem in the nature, size, shape, and fragility of the package.

There is no trouble whatsoever in stacking packaged glass five-pallets-high in a properly engineered warehousing system. Glass is as strong, within the limits of what must be done with it, as any other substance. It is much less a problem than soft-packed goods, which will not highstack because the tier of pallet loads tilts and bends and tends to droop.

We can't high-stack some paper goods and soft-packed items like cereals because the paper provided isn't strong enough. We can't high-stack commodities like cheeses because, in many instances, they do not palletize well, leaving a wide gap of unused wood on one side of the pallet and a big overhang on the other. Some items grow "tired" and lean. Dried fruits are big offenders in this respect. (The solution to this particular problem lies either in larger pallets or floor-level handling.)

Rest Pallets on Necks

Glass will stack perfectly, providing the pallet load is designed so that the bottom boards rest on the necks of the bottles in the case below—rather than on an edge of the case where there is only paper to support the load. As shown in the accompanying illustration, this is accomplished with an interlocking (tie) pattern.

Many material handling and warehouse men are reluctant to

tackle glass because it is fragile and brittle. The fact is that glass is usually well protected by the paper; unless it is thrown down and receives a violent shock, there is never any breakage.

Of course, it can be broken. But if you knock a case of canned goods off a high stack, you won't be able to sell it, either. So, while glass breaks, tin dents—and in either case you've ruined so much merchandise.

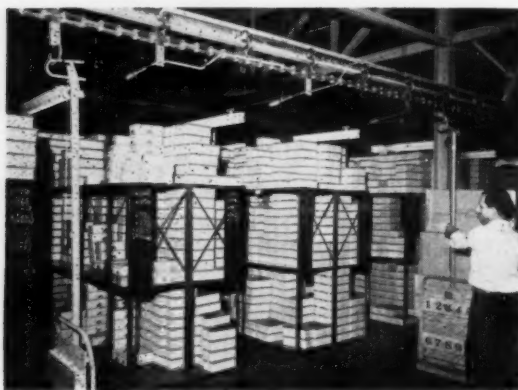
The warehouse operator should normally plan to go four pallets high with his merchandise, perhaps with glass included. That is the equivalent of 16 or more cases. But his warehouse should be "heighted" so as to permit him to go up a fifth pallet. He would do this in high inventory periods—September and October, for example—when stacks are complete and inventories at peak.

(Continued on page 98)



SECRET OF SAFE STACKING of glass jars is newly developed interlocking pattern, with bottom boards of pallets resting on necks of jars in cases below. Installation is at new Bursley & Co. warehouse, Lima, Ohio.

COST CUTTING



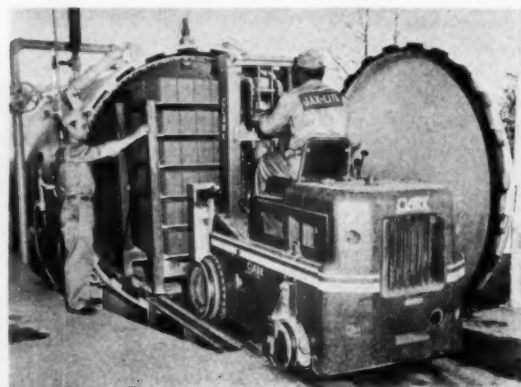
Circle 281 on Reader Service Card for more information

NON-STOP, IN-OUT CARTONS

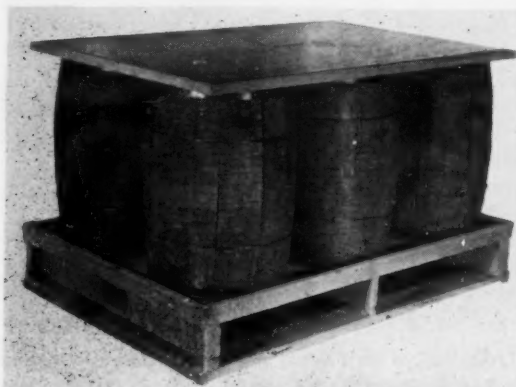
The cycle of operation at the Shoe Corporation of America's warehouse in Columbus, Ohio, begins with receipt of shoes for warehousing and ends with their shipment to the company's 400 retail stores. Handling of the goods is accomplished by a tow conveyor system that circles the warehouse with incoming and outgoing stock. Finished shoes are received in cartons and loaded onto tow trucks properly marked as to storage area. Shoes are unpacked at the stocking bins where orders are selected. Filled orders are carried by tow trucks to the shipping area where the same cartons in which the shoes were received are used as containers for outgoing shipments.

RAIL-RIDING FORK TRUCK

At Jackson Ready-Mix Concrete in Jackson, Mississippi, a fork truck is doing double-duty through a simple and relatively inexpensive modification. The truck not only moves racks of concrete blocks up to an autoclave for high pressure steam curing, but also moves the racks into the 100-foot long curer. Front flanged wheels are bolted to the regular wheels. Rear flanged wheels are supported in a "U" block which is bolted to the fork truck frame in direct alignment with the regular wheels. In operation, flanged wheels travel on rails set in the floor of the autoclave, and when the fork truck is traveling in a normal manner the flanged wheels clear the floor by several inches.



Circle 282 on Reader Service Card for more information



Circle 283 on Reader Service Card for more information

SAVED: \$160,000 PER YEAR

More than \$160,000 a year is being saved in the engine assembly department of a large automotive manufacturer since the standardization of parts containers. Formerly, parts arrived in a variety of containers of every conceivable make, shape and size. The unloading dock was usually jammed; broken and spilled packages were not uncommon; lost-time accidents were frequent; and inter-plant transportation presented a problem. Now, parts are specified to arrive in wooden kegs, mounted on steel pallets. Six kegs fit on a pallet with a common banded cover. The units are easy to move, and five-high stacking has increased storage utilization by more than 100 percent.

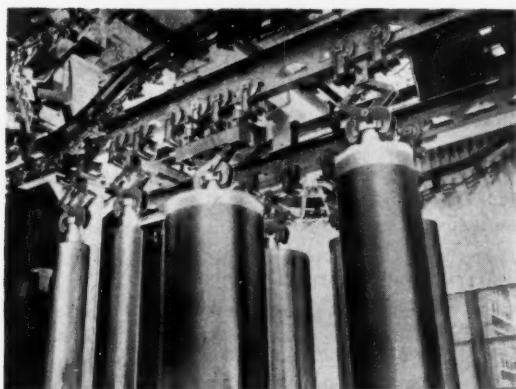
IDEAS COST CUTTING

EFFICIENT CARPET HANDLING

A fork truck equipped with a nine-foot long rug pole regularly loads out 60 rugs per hour at Dalton Carpet Finishing Company in Dalton, Georgia. Use of the truck has freed four to six men for other less burdensome duties, and speeded up handling time throughout the mill. The company is in the business of washing and dyeing new carpeting. Nine-, 12- and 15-foot widths of carpeting are received in rolls and stored temporarily in bins. After washing and dyeing, the rugs are run through a drying machine, re-rolled and placed in bins for loading out. A considerable savings in hauling time has also been realized, since the fork truck positions greater loads inside trailer trucks.



Circle 284 on Reader Service Card for more information



TONGS DO DOUBLE DUTY

Fast and safe handling of various sizes of mandrels is being accomplished by General Electric Company with automatic tongs suspended from an overhead conveyor system. The mandrels are used in making hard paper cores for transformer coils. In the process, Kraft paper is wound around each mandrel, which is then conveyed through a curing oven. After it is cured, the paper cylinder is removed from the mandrel, and wire is wound upon it to form a coil. Some 100 tongs not only carry the mandrels through various processes, but also support them while in storage. The operation is entirely automatic; loading and unloading is controlled from the floor without need for overhead manual adjustments.

Circle 285 on Reader Service Card for more information

ONE SYSTEM SERVES 5 PLANTS

Danly Machine Specialties, Inc. operates around the clock in five different buildings, turning out big mechanical presses. All presses are completely assembled and tested before shipment, saving valuable installation and adjustment time for customers but adding to the manufacturer's handling problem. Backbone of the handling system is nine overhead cranes which are responsible for almost all of the inter-building handling. Crane runways extend from one building to another, eliminating intermediate handling. The crane system has provided a high degree of dependability and precision throughout the five plants and has permitted utilization of all floor space in the buildings.



Circle 286 on Reader Service Card for more information

Integrated Handling

- eliminates production delays
- increases worker comfort
- minimizes breakage
- simplifies production scheduling



1. ARRIVING at the plant in rack trucks, partly assembled chassis are loaded onto overhead conveyor which travels into pre-final assembly area.



2. BELT LINE for pre-final chassis assembly intercepted by conveyor from receiving. Unloaded by hand, components go on castered, metal-clad plywood dollies.

BENEFITS of mechanized material handling are shared by management and employees at the new Motorola TV plant in suburban Franklin Park, Ill.

With a modernized, integrated handling operation, time (and manual effort) to move semi-finished components between stations has been eliminated, damage to units in process has dropped appreciably, and production scheduling has been much simplified. And, with paced production providing for rests at periodic intervals, fatigue has been cut, workers enjoy their jobs more, and product quality has improved. Many Motorola people have requested a shift to the new plant because of the protection it offers against work overloads.

Sixteen Coordinated Conveyors

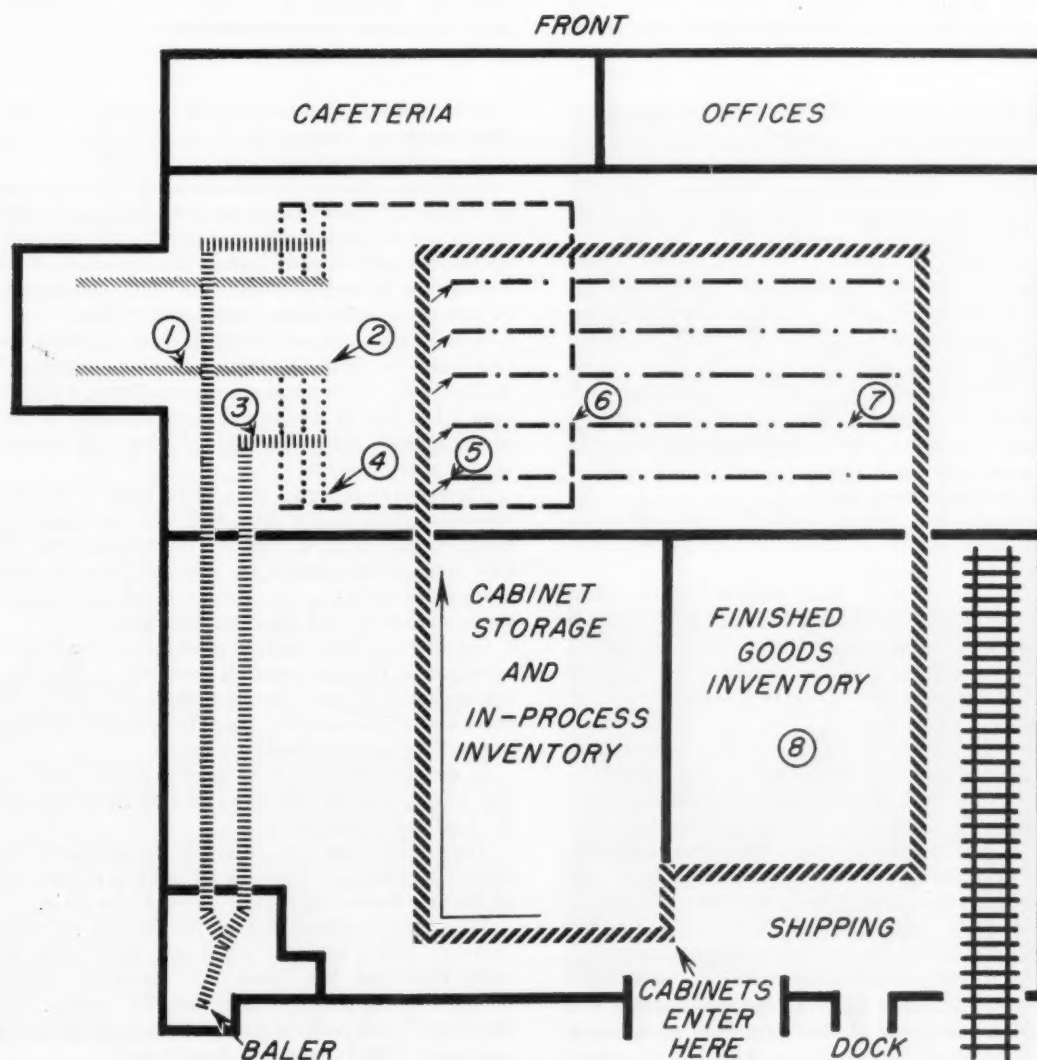
The Franklin Part plant covers 280,000 square feet. Of this, 12,500 are in office and cafeteria space, 96,000 are devoted to production, and the remainder to storage, receiving and shipping docks.

The flow chart shows how 16 separate but coordinated units comprise the conveyor installation. This handles four types of units—chassis, tubes, cabinets, and semi-finished sets. These components go into 28 TV models, ranging from the 17-inch-screen table set

(More on next page)

- ||||||| Picture tube conveyors (overhead)
- /////// Chassis conveyors (overhead)
- Pre-final Assembly Line (belt conveyor)
- Chassis conveyors, tubes installed (overhead)
- • — Final assembly (slat conveyors)
- /////// Cabinet line (in-floor tow)
- ||||| Indoor railroad dock

..... As a result, Motorola, Inc., finds a new continuous flow assembly system has reduced production employee's time per unit by 4 percent





3. **TUBE CARRIERS**—canvas sacks sewn to steel rings—arrive at pre-final assembly from receiving dock area, where they are unpacked and cartons are baled.

to the 24-inch console. Conveyors also transport shipping containers.

The cabinet line begins at the main receiving dock in the rear of the plant. Here, cabinets are loaded onto an overhead tow conveyor which moves them to the beginning of the final assembly line. The tow line, 1,800 feet long and holding 75 trucks, makes a loop around the perimeter of the plant, picking up completed TV units on the return trip and bringing them to the shipping platform, which is located alongside the main receiving dock.

Picture tubes travel from the main receiving dock to the chassis assembly line on a separate pair of overhead conveyors. Carriers for tubes consist of a canvas sack sewn to a steel ring to which is attached a curved bar hung from the trolley.

Tubes are unpacked just inside the plant, and empty cartons are conveyed to a baler. The compressed cardboard is sold for scrap.

Chassis, which arrive from another Motorola plant about a 20-minute drive from Franklin Park, come in castered rack trucks. Each truck holds 40 components on trays—which are easily adjustable to accommodate different chassis models. Eight rack trucks fill a 32x8 foot truck trailer.

When the truck arrives, chassis are removed from the racks manually and placed on J-hooks, spaced two feet apart, on the first pair of conveyors. These travel at speeds of from 6 to 18 feet per minute, depending upon production conditions, and carry chassis through a hole in the wall separating the receiving dock from the pre-final assembly department. The distance is about 100 feet, and a total of 283 chassis can be accommodated on the two conveyors at one time.

At both ends of the trip, the conveyor is at a height of four feet from the floor—to facilitate loading and unloading—but most of the journey is made about eight feet higher.



4. **READY** for final assembly into cabinets, chassis have been completed on plywood dollies. Belt return, lower left, takes dollies back to start of line.

After unloading chassis in the pre-final assembly department, the J-hooks circulate back to the receiving dock for additional loads.

Each chassis conveyor feeds three belt-conveyor, pre-final assembly lines. Chassis are unloaded by hand and placed on metal-clad, plywood dollies for assembly operations. Dollies travel back to the beginning of the line via the lower belt return. The conveyor carrying picture tubes feeds across these assembly lines.

With picture tube and circuit elements installed, the unit travels to final assembly on tray-type carriers of another pair of overhead conveyors. These, together, total 2,172 feet in length and carry as many as 543 of the delicate assemblies up and down and around several sharp corners.

The two-tray conveyor lines feed a total of five final assembly, slat-conveyor lines, each 142 feet long. One conveyor crosses three lines, the other crosses two. At each intersection, chassis are removed from the conveyor and installed in the cabinets, which are fed in at the beginning of each final assembly line.

Cabinets are still in cartons when they arrive, by tow conveyor, in the final assembly department. After they are unpacked by hand, empty cartons are sent to the other end of the assembly line, via overhead belt conveyor, to be used for final packing.

In the slat conveyor is an electric outlet system so that tubes can be warmed up by the time the set reaches the final testing station.

After a final test, the carton is dropped over the cabinet by two men. Then the set is tilted so that two of the four bottom flaps can be kicked into place.

The carton is turned slightly, then moves, via roller conveyor, past a series of guide rails which push the other two flaps into place. An automatic stapler, mounted in the conveyor bed, seals the bottom. The top of the carton remains stapled throughout the whole operation.



5. CABINETS start toward final assembly while cartons move to head of line, via overhead belt. Cartoned cabinets arrive here via in-floor tow conveyor.



6. TRANSFERRED by hand from one of two overhead conveyors to final assembly-slat-conveyor line, finished chassis are ready for installation in cabinets.

After packing, completed units are loaded onto platform trucks which are towed by floor conveyor to the shipping department. This includes a railroad dock with space for 22 cars, and a 10-position trucking platform. Both adjoin a large storage area.

Sets are transported to storage or to freight carriers by lift trucks fitted with side clamps. These handle up to eight sets at a time and stack them to a height of about 15 feet.

Systems for Safety and Comfort

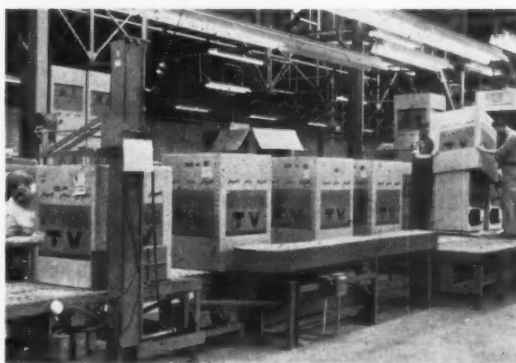
Each unit of the conveyor system has its own power supply. This includes an electric motor (in capacities ranging from $\frac{3}{4}$ to 20 hp.) and a caterpillar drive or chain-and-sprocket assembly with a minimum 3:1 gear ratio. Size of motors was increased 50 to 75 percent above that required for calculated load conditions. This margin provides a safety factor, overcomes frictional losses, and will accommodate heavier-than-normal production, lengthening of the conveyor, or changes in components which increase their weight.

Stop-start buttons are located at each loading or unloading station, as a safety measure. Speed is changed only infrequently. This is done manually by specially-assigned personnel.

One of the big advantages of the conveyor system is that it mechanically paces production, explains Warren Gieffers, assistant works manager. This gives the worker a steady flow of assemblies timed to enable him to rest briefly at periodic intervals. Fatigue is cut and the quality of the product is improved, Gieffers adds.

Although no figures regarding this benefit are available, the change in the attitude of some Motorola employees toward conveyors provides a graphic illustration of its value. When the firm installed its first conveyor line, at another plant, in 1947, there was a

(Continued on page 104)



7. DROPPED over sets, cartons are tilted and two flaps folded. Then guide rails place other flaps and carton is sealed by automatic stapler in conveyor bed.



8. SIDE CLAMPS on warehouse truck hold and stack, to as high as 15 feet, up to eight sets at a time. Clamp trucks also handle shipments to freight carriers.

Care and Service of Motor-Generator Battery

By G. E. Tenney, Service Manager
The Lincoln Electric Company

MODERN motor-generator type battery chargers are designed to give long, trouble-free service. If equipment is not abused or neglected, the cost of maintenance and operation can be negligible. The occasional replacement of commutator brushes and periodic cleaning are about the only regular maintenance needed. Manufacturers' recommendations and instructions on these operations are easy to follow.

On most units, a shield covering the commutator can be removed for inspection. It must not be disturbed while the machine is running. This cover should be removed and brushes inspected regularly at intervals of no less than approximately six months. The brushes are properly adjusted by the manufacturer when the charger is shipped from the factory and will require no attention until they wear out and must be replaced with new ones. A set of new ones should always be kept on hand. Rapidity of wear will depend upon the amount of use of the equipment and care of brushes.

Replacement should be made when the brush spring (finger) is within 1/16 inch of the end of its travel limit. The old brushes are removed from the holder and replaced with new ones. These must be sanded in before operating the machine. A standard sanding stone can be used, but if one is not available brushes can be sanded with fine sandpaper. The paper is placed under the brush and drawn back and forth while the brush is held against it by the brush finger. The back of the sandpaper must be held closely against the commutator so that the brush will be worn by the sandpaper to the curvature of the commutator. When the entire brush surface rides on the commutator, the brush is ready for

operation. All of the carbon dust created by the sanding must be carefully blown away from the commutator.

Do not use emery cloth as this will short-circuit the commutator.

The commutator itself requires little attention. It should be cleaned only if it becomes dirty or greasy. The color of a commutator varies, but it should not be bright copper. It may become especially dull when the equipment is operating in a dust-laden atmosphere. The commutator should be cleaned with a clean rag or by holding a piece of heavy canvas, with a stick, against it while the machine is running. Never use emery cloth.

Occasionally the brush springs should be checked to be sure that they are holding brushes against the commutator with a firm, even pressure. Weak or bent springs should be replaced, for they will cause uneven brush wear.

These motor generator sets have double shielded ball bearings that are fully greased at the factory. This grease, in normal operation, should last from one to three years. It is a good precaution, however, once a year to add one-quarter ounce of grease to small bearings and one-half ounce to larger bearings. (A cubic inch of grease weighs one-half ounce.) Use grease of a grade recommended by the manufacturer. In general, it is better to under-grease than it is to over-grease.

Dirt causes more ball-bearing failures than any other factor. Dirt may contaminate grease when a bearing cap is removed for inspection. For this reason, it is inadvisable to inspect a bearing more often than every six or eight months. And then, before removing the cap always wipe it absolutely clean.

Troubles can be eliminated before they start, and long equipment life can be assured, if simple inspection and corrective procedures are followed conscientiously

Chargers

If the charger is operated in an exceptionally dusty atmosphere, it is advisable to blow out the machine one a year. This can be done easily by removing covers and blowing out the dirt with compressed air of no more than 30 pounds. Greater air pressure might force dust into bearings.

Check connections frequently. They must be tight at all times to insure the maintenance of a good electrical circuit, without unnecessary losses, and maximum useful output of the machine.

If this simple maintenance procedure is performed conscientiously, long service life is assured. If, however, through neglect or abuse, major repairs are required, many manufacturers can handle this work efficiently and quickly through authorized service shops.

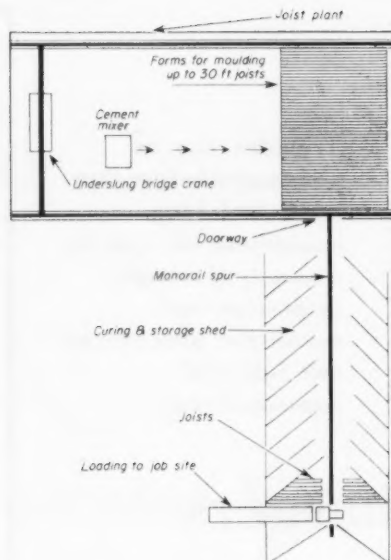
Neglect or abuse are also among chief causes of operational difficulties. Fortunately, the mechanical and electrical design of this type of charger is relatively simple, permitting the average mechanic, with the help of the accompanying chart, to locate and eliminate the trouble quickly.

TROUBLE-SHOOTING CHART

Troubles	Causes	Cures
Motor fails to start.	Power line dead	Look for open switch or blown fuses.
	Power line single phased	Look for blown fuse or one dead line lead.
	Power line voltage not suitable for motor, or input-voltage too low	Check line voltage and see that it agrees with nameplate voltage. If voltage too low, check with power company for line losses.
	Motor protectors (Klixon) open	If machine has had time to cool, check circuit through "hold-in" coil, thermostats and timer.
	Timer motor not operating	Check time of motor rotation. Check for opening between charger and timer motor.
	Machine jammed	Check armature for easy rotation and air gap for any foreign material.
Motor trips off line.	Power line single phased	Look for blown fuse or one dead line.
	Ventilation impaired	Make sure that spaces provided for ventilation are open and are clear of any obstructions that would interfere with normal ventilation of machine.
	Motor input-voltage too low	Motor supply voltages should not fall below 90% of normal voltage.
Charger starts but fails to generate current.	Wrong rotation	Check with nameplate direction arrow. Interchange any two line leads if reversed (3-phase). If 2-phase, reverse the leads of one phase.
	Blown fuse	Replace fuse in DC circuit and check battery polarity.
	Generator brushes loose	Be sure all brushes bear on the commutator and have proper spring tension.
	Field and armature circuit may be open	Check circuit with ringer or voltmeter.
	Open rheostat	Turn rheostat to maximum. If there is a DC output in this position but not at any lower setting, replace rheostat.
	Open series resistor	Replace series resistor and check for battery polarity and generator rotation.
	Line contactor open	Check "hold-in" coil. Replace if burnt open.

Continuous Overhead Handling....

Inside and Outside



INTERLOCKING basic handling systems—to effect continuous flow from production (inside) through storage and shipping (outside) can produce as substantially for smaller companies as it can for the larger ones.

An exemplary instance is at National Cement Products Co., Toledo, Ohio. Employing approximately 100, the firm has been able to increase production by 50 percent while decreasing costs. And the integration of overhead handling throughout operations has been responsible for these results.

For some time, material handling has been an integral part of production at National Cement. The firm manufactures pre-cast concrete joists. Cement is mixed at one end of a building 38 feet wide and 100 long. It is poured into a batcher attached to a power-driven, underslung bridge crane. The batcher is moved over a series of steel forms occupying the opposite end of the building.

Here, joists are cast in lengths ranging to 30 feet, the largest weighing 1170 pounds. They "set" for 24 hours, and are then taken out of the forms.

Formerly these uncured joists were placed on racks, on each side and in the center of the building, for curing—which takes two weeks—before loading for delivery to job sites.

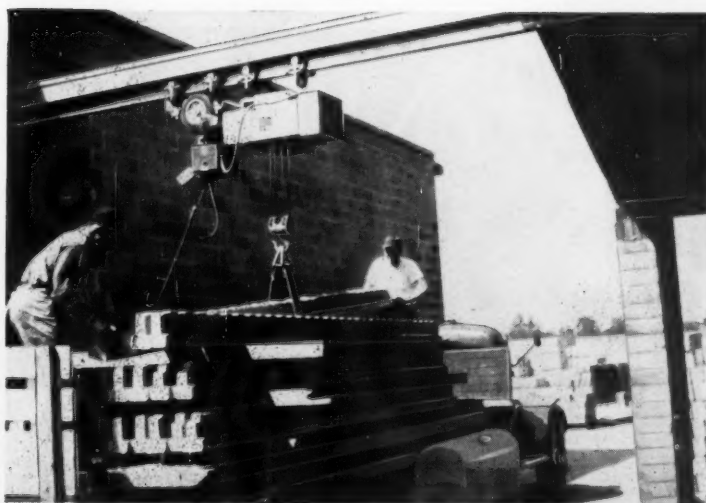
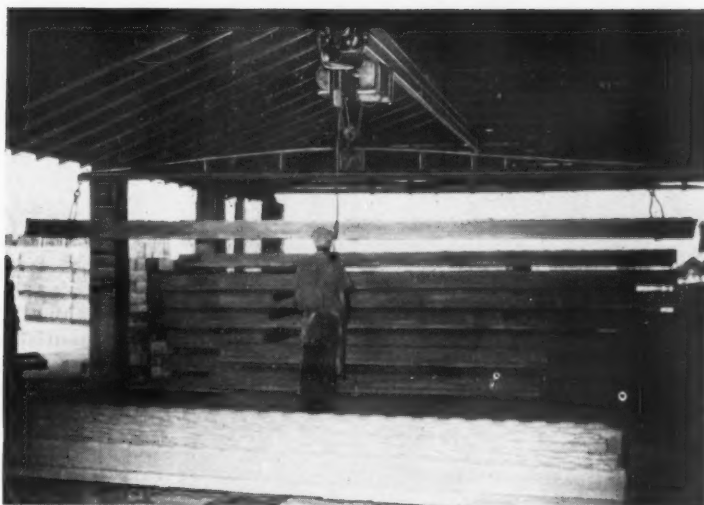
As demands for increased production grew, this set-up became inadequate, and an open-side storage shed was built. Constructed adjacent and at right angles to the main building, this is 38 feet wide, 97 long.

Solving the Problem

The shed solved the storage problem, but handling to, in and from it proved costly. Using the crane, joists were loaded onto a truck, which was driven into the storage shed. There, joists were unloaded and stacked—with much hard, manual labor. The method not only tied up a truck and driver but also required two men to "horse" the products around.

To overcome this condition, a monorail spur was erected down the center of the shed and interlocked with the "inside" crane. Now, only one man is needed to handle joists "outside"—for in-and-out storage as well as to assist the delivery truck driver.

BRIDGE CRANE in plant handles batcher pouring concrete into joist forms. These set for 24 hours, are then carried by interlocking mono-rail spur to curing shed.



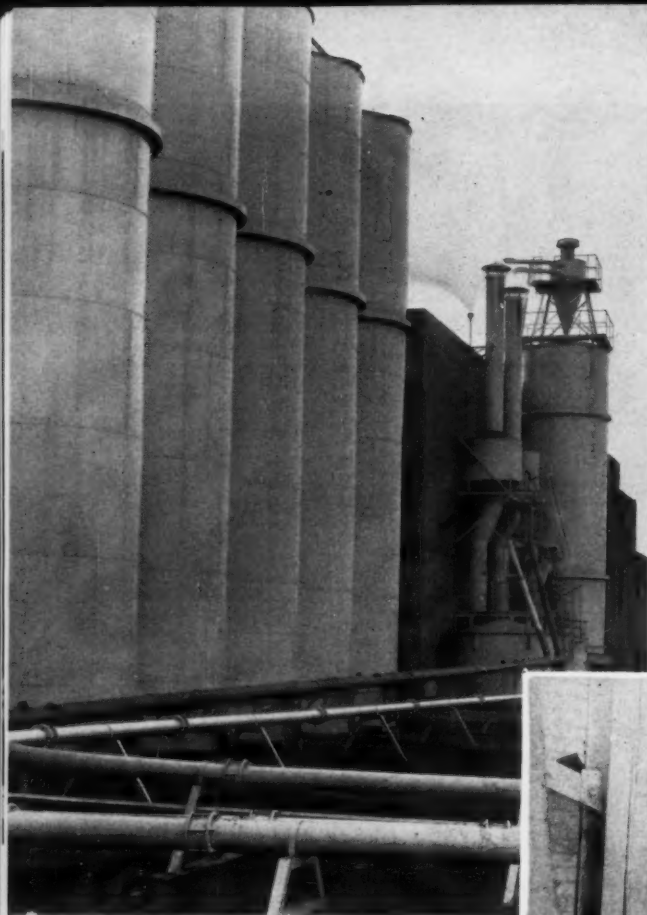
MONORAIL down center of open shed, at right angles to plant crane, handles joists into and out of racks. Normally, only one man is required on this job.

LOADING delivery trucks is last operation on interlocking spur, which enabled company to accomplish fifty percent increase in production—at lower cost.



Automatic Control

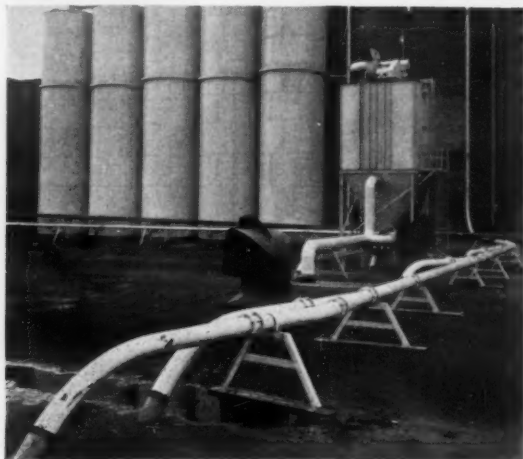
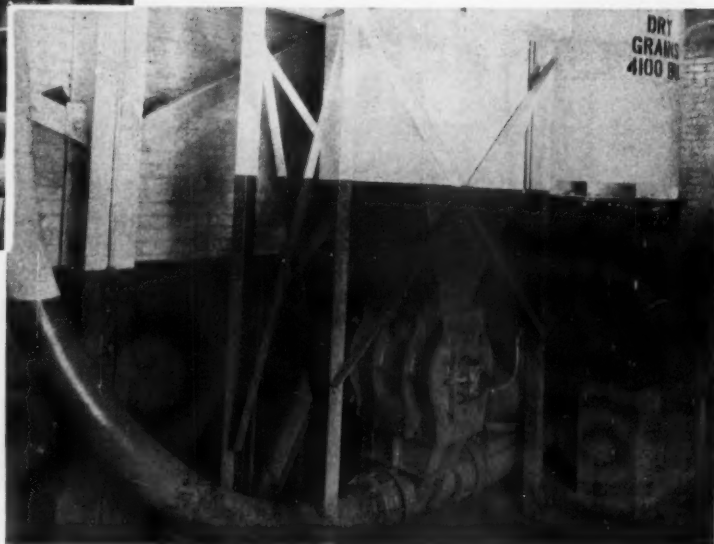
Substantial savings are made through bulk-loading of boxcars, with pneumatic handling systems coordinated and run by remote control, but there are also other important advantages.



CONVEYING lines, foreground, carry spent grain from storage to rail terminal. Cyclone atop rear tank passes material into storage.

ENTERING conveyor line through rotary feeder, material is blown to loading operation by pressure from positive displacement pump.

FILTER, foreground, collects dust from loading operation, returns cleaned grain to car. Other lines convey from receiving to storage.

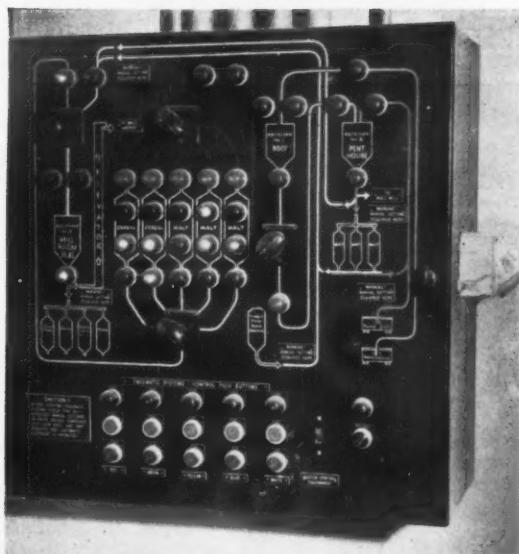


PNEUMATIC conveying offers advantages in the handling of many types of bulk materials. It eases the loading and unloading of vehicles and permits bulk-purchasing, with substantial reduction in cost to the buyer. It allows flexible conveyor installations, with systems adaptable to practically all plant structures. It provides enclosed, contamination-free operation and self-cleaning action. And, as shown in at least one installation, it effects savings which can be passed along to a large number of consumers.

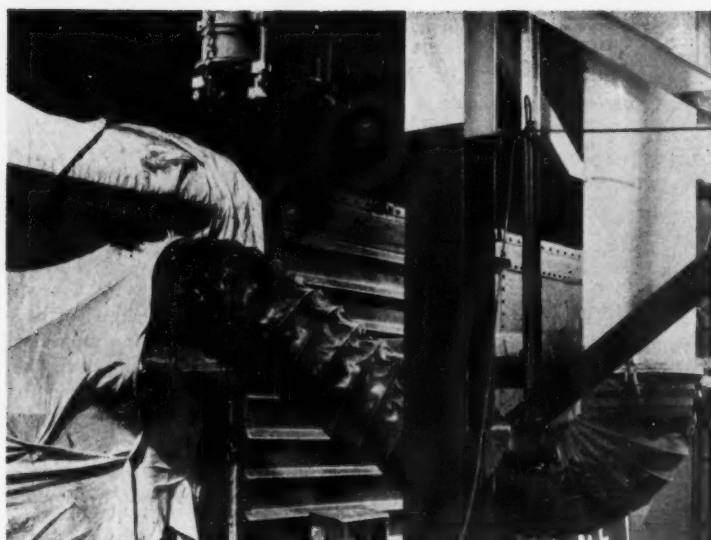
Bulk-loading of boxcars—an improvement which will mean a substantial increase in revenue from the marketing of spent grains—is one of the applications for a new pneumatic conveyor system recently installed at Carling's Cleveland (Ohio) brewery.

The new system, used in connection with an existing pneumatic installation, has helped the brewery to double its annual output of beer and ale.

of Bulk Flow



CONTROL of all phases of operation is from panel which coordinates systems. Attention of only one man—part time—is required.



LOADING boxcar, larger nozzle carries grain, smaller line picks up dusty air for return to filter, cleaning air and preventing waste.

All operations in old and new systems are controlled from a single panel operated by one man.

The brewing industry has been realizing, to an increasing extent, the possibilities of profit from the marketing of spent grains. Malt and cereal are valuable to the animal feed industry after use in the brewery because of the high protein value remaining.

In the bulk-loading process, dried spent grain is removed from storage and conveyed to Carling's rail terminal, where, through flexible nozzles, it is loaded into boxcars at either of two docks. A dust control nozzle, inserted in the car being loaded, relieves the air pressure build-up and carries the air-entrained dust to a "Multi-Bag" filter. Here, usable spent grain is recovered and returned to the loading process.

The same conveying system is used for malt and cereal, alternately, with rapid change-over. Most important to the installation was a system which would

convey these materials rapidly—but without damage to the grain. Broken husks result in a loss of filter bed material for lauter tubs; grain that is powdered loses some of its extract.

The pneumatic system provides an effective cushion of air, protecting the grain from damage during high-speed movement.

In the unloading operation, grains are conveyed from boxcars, at the firm's rail terminal, to primary storage tanks at a rate of 18 tons per hour for malt and 13 tons per hour for cereal. Storage tanks of the old and new systems, with a total capacity of 38,500 bushels, are used for primary storage.

As they are needed for the brewing process, grains are withdrawn from storage tanks and conveyed to weighing hoppers at a rate of 11 tons per hour for malt and seven tons per hour for cereal.

Photos and data courtesy of Dracco Corporation.

M O D E R N I Z I N G

a warehouse operation

by H. H. Lemmerman, Manager, General
Stores, Airco Equipment Manufacturing Div.,
Air Reduction Co., Inc.

Here are tips from a company that has been
through all the headaches of expansion—from a new storage
layout to a complete warehouse relocation.

DESIGNING AND INSTALLING new storage and warehousing facilities are tasks many firms tackle reluctantly. Or they keep putting them off while costs pile up—along with the materials in the old warehouse.

Since we at Airco have recently been through these processes we are glad to pass our experiences along to others who may find them valuable.

First, consider the reasons why we needed new facilities—reasons not uncommon today. The finished goods storeroom originally occupied about 40 percent of a six-story manufacturing building. Two freight elevators served all floors. As it became necessary to expand manufacturing operations, other storage facilities had to be acquired—at distances ranging from a few blocks to several miles. Inter-plant highway trucks were a continuous need.

In the warehouse, stock bins were piled 10 feet high, reached by ladders rolling in three-foot aisles. All storage operations were muscle-powered.

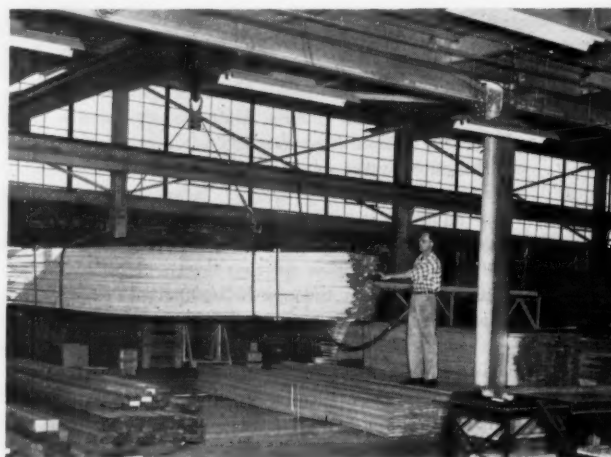
Evaluating Storage Needs

A survey disclosed the basic forms of materials involved in our storage operations. There were four—

CONSERVING floor space for longer items, balconies (background) of "I" beams were constructed on both sides of part of crane area to hold shorter materials.

evaluated by cubical requirement and method of handling. It was then necessary to determine numerical and cubic area requirements for working supplies. About 12,000 items were involved, with sizes ranging from an escutcheon pin to a five-ton machine.

Items To Be Stored on Shelves: First consideration was given to items weighing less than 50 pounds,





with a cube less than 36x18x12 inches. These were assigned to the shelf area. This was to comprise some 1100 lineal feet of adjustable steel shelving in sections three feet wide, seven feet high, 18 inches deep—set back to back. (The seven-foot height eliminated the need for ladders and consequent loss of time in stock selection.) Basically, shelves were set on 12-inch centers, but dependent upon the bulk of the item, provisions were made for other openings—such as 6-inch height divisions to accommodate six compartment boxes per shelf.

The stock number system—to provide sequence storage—involved class, group and part numbers. Small items were assigned to compartment boxes, divisible into minimum spaces one inch long, five wide and five deep, or multiples of these.

A storage period might run from 60 days to a year. If a lot requires more than one or two shelves, only a reasonable supply is carried—consistent with time requirements—in the stock picking area; the balance is consigned to a reserve area. If a shelf is likely to be emptied in a month, two shelves can be allotted to that item. Three shelves might be used if a quantity lasts only a week or two.

Aisles in the shelf area are five feet wide to permit the easy passage of shelf (stock-picking) trucks.

Items to be Stored on Pallet Racks: When materials can be palletized but the loads cannot be readily

ORDERS COMPLETED and assembled on platform and shelf-trucks are assembled into trains and towed by fork truck to adjoining shipping department.

stacked, adjustable pallet racks are employed. Racks are designed for 32x40 inch pallets, two per shelf, each pallet carrying a 2000-pound load.

Racks were designed to provide either two 36-inch or three 24-inch openings. Load bars of the pallet bed are spaced so that pallet stringers rest upon them—rather than the under cross-boards—to prevent a pallet from being accidentally pushed off and to provide even overhang in aisles.

Allotment of space in this area follows the same general plan as that in the shelf area. However, about a third of the area is used as a reserve, or unassigned, section to accommodate overflows from allotted space.

Six-foot aisles are provided for operation of out-rigger-type fork trucks.

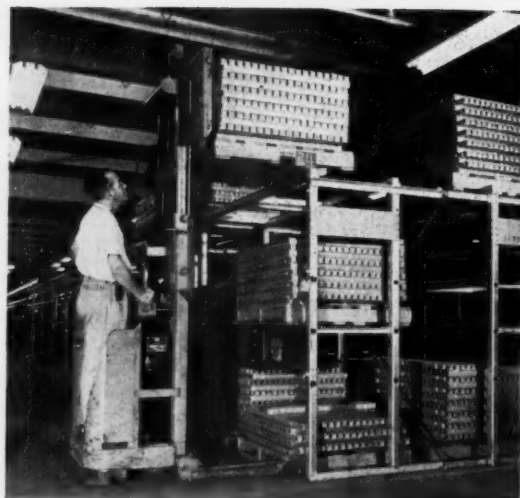
Items To Be Stored In Pallet Stacks: If materials make up the type of pallet loads that can be stacked, they are tied to the ceiling. One of our requirements is that there be sufficient quantity of an item of this sort to require a minimum of two such stacks. This provides for rotation of stock without unnecessary handling. Otherwise, the item is assigned to pallet racks. This area also has six-foot aisles.

(More on next page)

Items Which Cannot Be Palletized: Materials more than 48 inches long, or of greater bulk or weight than can be palletized, are allotted space in a 50x350-foot area. This is served by a five-ton overhead crane.

To conserve floor space for lengthy items—which may go to 26 feet—there are balconies to take heavy objects not over six feet long. These are on both sides of 200 feet of the area. Balconies are made with three rows of "I" beams six feet above the floor on 30-inch centers. Each beam will support 300 pounds per lineal foot.

The area has an eight-foot aisle located off-center so that longer pieces may be on one side. Sections are



ABOVE: Materials which can be palletized but not stacked are stored in adjustable pallet racks. BELOW: With orders assembled, shelf-trucks ready for "train." LEFT: Shelves store items weighing less than 50 lbs.



10 feet wide and numbered—even numbers on one side, odd on the other—so that, as material is placed, the location can be recorded.

Operation and Inventory Control

Orders are released to the storeroom after they are posted to a perpetual inventory record. This controls the disposition of materials in stock as well as the release of orders for shipment. About 75 percent of all stock is released on orders that cover the entire range of stock numbers, and the listings generally are in stock number sequences.

In the shelf area, stock-pickers use three-shelf floor trucks. Three, separate freight orders may be placed on one truck if any one order does not occupy more than one shelf. Otherwise, each vehicle holds



materials for one order only. When a truck is full, or when selection of material is complete, it is left, with order papers, on one side of the main aisle—to be towed to the shipping area by powered truck.

In picking small and light materials—for shipment by parcel post or express—as many orders as possible are carried on a truck.

In the pallet rack and stack sections, orders are given to a fork truck operator for selection. These are placed on pallets, two of which go on a platform truck. When an order is completed, or a truck fully loaded, it too, is placed on one side of the main aisle.

When a fork truck operator has filled the orders assigned to him, all loaded trucks are entrained and towed to the parking area of the adjoining shipping

(Continued on page 100)



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96

Yale Prexy Stresses Optimism At Opening of Detroit Branch

"IF material handling in American industry has reached 30 per cent efficiency, it has done well; the saturation point in this field lies in horizons still beyond our view and comprehension."

With this observation, and with an expression of supreme confidence that the present American economy will not be permitted to deteriorate, and that World economy will improve, Gilbert W. Chapman, president, recently opened in Detroit, The Yale & Towne Manufacturing Company's eighth material handling sales and factory service branch.

Citing constant observation of and familiarity with business in general, and his own company's outlook, as bases for his confidence in the future, Chapman declared that "amazing improvements will be accomplished in material handling tools—and especially in fork-lift trucks. Presently on drawing boards, or under construction in experimental laboratories, are trucks which will shrink aisle requirements to four feet or less. We are busily at work in this direction; we've got some rather revolutionary developments in progress. Naturally, I'm not at liberty to tell you what they are."

It isn't only for the material handling products of his company that Chapman sees a healthy future. As a matter of fact, he believes that all the tools presently available to the material handling engineer will undergo improvements, and that only by "teaming them"—by employment of systems which integrate several, or perhaps many, will handling begin to approach 100 per cent efficiency. Here he pointed out that "in our own plants we make heavy use of conveyors as well as our own products; and other items necessary to best utilization of our basic tools."

No one piece of equipment, in Chapman's opinion, is a threat to another. The future is promising for all of them—"properly sold and properly used." The entire industry, he holds, is "shaking down and ridding itself of the 'growing pains' with which it was afflicted for the first six or seven post-war years." He expects to see some mergers, further diversification of products on the part of some of the larger companies in the field, "and perhaps the disappearance of some of those which fail to keep pace with the intensified merchandising and sterner competition re-

(More on page 98)

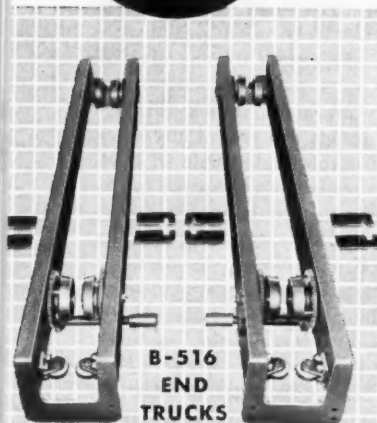


Among participants in the opening in Detroit of its eighth materials handling equipment sales and service branch (l to r), Gilbert W. Chapman, President of The Yale & Towne Mfg. Co.; Elmer F. Twyman, vice president in charge of the company's material handling divisions, and David K. Wirth, manager of the new Detroit branch.

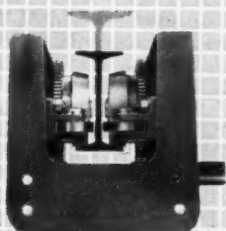
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products

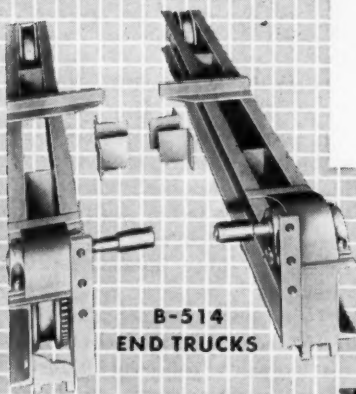
These Simple Steps Show You How to Save Money on Cranes



**B-516
END
TRUCKS**



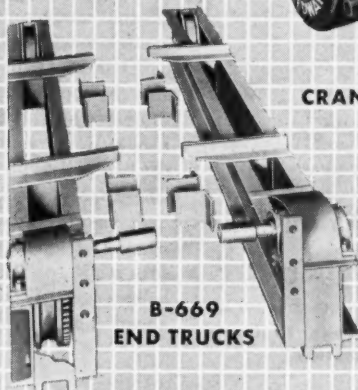
GUIDE WHEELS



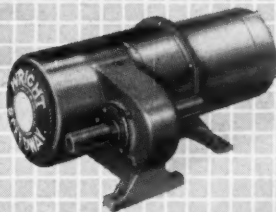
**B-514
END TRUCKS**



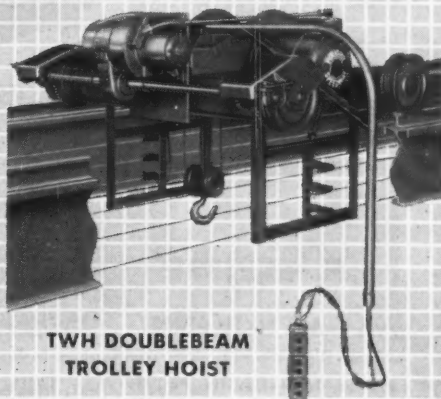
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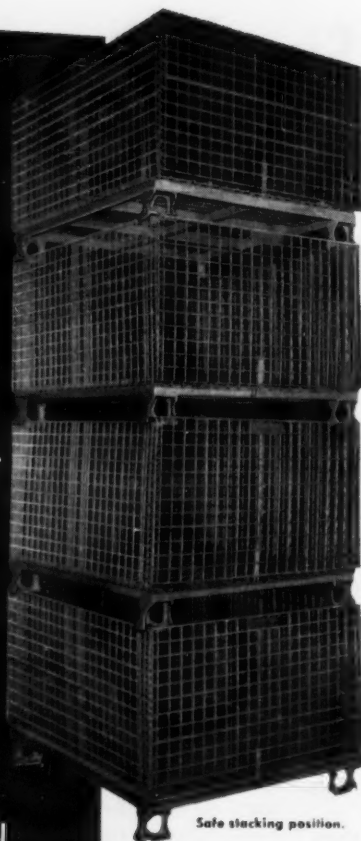
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YALE BRANCH

Continued

quired by our high-level economy."

For his own company, Chapman reported 16 per cent greater sales in the first eight months of 1955 than in the corresponding period last year, and that net earnings are running at a rate of more than 200 per cent higher than in 1954.

Accompanying Chapman to Detroit for the opening of the 20,000-square-foot, one-story branch, were E. F. Twyman, vice president in charge of the company's material handling divisions; James H. W. Conklin, general sales manager, Paul J. Friederichs, Division General Service Manager, and Carl O. Hedner, hoist equipment sales manager. The "open house" was attended by more than 1,000 representatives of industry in the lower Michigan Peninsula, and Toledo, Ohio, areas.

David K. Wirth is manager of the new Yale branch. Sales manager is John R. Henderson.

STACKING GLASS...

(Continued from page 79)

In terms of No. 2 goods in food warehouses, this is 18 feet, 4 inches high. Using racks, the height would be 19 feet, 4 inches, with pallet loads three high over the steel. Height in either instance is 20 cases.

To do this, machines must lift to 152 inches atop the forks to get that last pair of pallets up together. If the machine were to have enough mast height to lift the fifth pallet individually, it would probably be too high to pass through some of the warehouse doors. So, it is customary and normal to set the two pallets up in one operation when one goes five-high.

A closing suggestion—don't ask whether it's glass or tin. Just make sure it's a good solid pack, properly arranged on the pallet. Then go ahead and stack it.

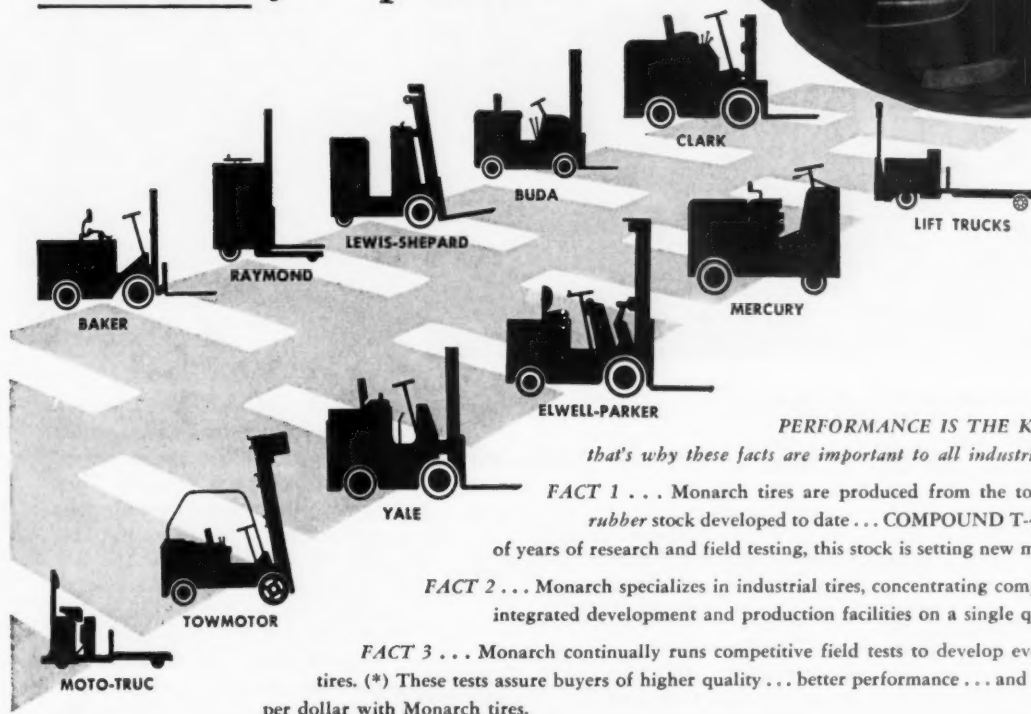
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FACT 5 . . . Monarch has a type and size of solid tire for every materials handling truck application.



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(*) FOR DETAILS AND PRICES, WRITE
TODAY FOR BULLETIN TD-200.

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NOVEMBER, 1955

99

Farquhar

power-belt and gravity

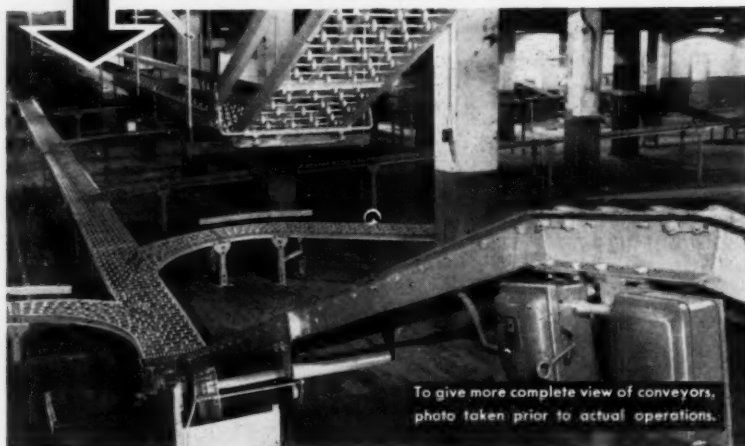
CONVEYOR SYSTEM

handles 40,000 packages per week

at the

PIGGLY-WIGGLY MIDWEST COMPANY

Rockford, Illinois



To give more complete view of conveyors, photo taken prior to actual operations.

YES, 40,000 PACKAGES PER WEEK move smoothly and swiftly over the *Farquhar* Conveyor System installed recently in the Piggly-Wiggly Midwest Company's three-story warehouse at Rockford, Ill.

Merchandise is unloaded from the railroad siding and trucks and reloaded from all three floors at one common point with a *maximum load*. The system is engineered and installed to load and unload *simultaneously*.

Results include... 50% increased handling capacity... decreased work week from 55 to 45 hours... and the elimination of two other warehouses.

FREE

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This is another example of Farquhar's ability to engineer and install Bulk or Package Handling Conveyor Systems for your specific materials handling problem. Write us today.



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618 W. Elm St.
Chicago 10, Ill.

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MODERNIZING WAREHOUSE . . .

(Continued from page 94)

department. Order papers aboard each truck are given to the Packing Supervisor.

In the crane bay section, the required number of men is dispatched with a copy of an order. The order is placed in the "selected area", and the location is indicated on the order, which is given to the Packing Supervisor.

Reserves Easily Identified

When excess material is placed in the reserve section, the top half of an identification tag is fastened to the "home" shelf location. When space is available, a refill ticket is issued by the stock-piler. The tag is removed, by fork truck operators, when all of the reserve material it covers has been transferred.

Sixty shelf trucks, 50 platform trucks, two outrigger-type fork trucks, and approximately 2200 pallets are employed in this operation—which encompasses over 75,000 square feet.

Setting Up The Move

As the comprehensive planning for the system took place, scaled layouts of the new elements were prepared on paper templates. They provided the general floor arrangement as well as details for the erection of shelving, racks, and balconies, as well as the marking of floor areas. As erection progressed, storage elements were labeled to identify stock numbers to be placed in them.

For several weeks before the move, the compartment boxes were arranged according to the new layout. These were scheduled for the first truck load. All that had to be done was to place them on shelf trucks, roll them aboard highway trucks, and then follow the reverse procedure at the new building.

Materials to be stored on pallets also were assembled in advance because they made loads which could be quickly moved.

Items not easily palletized were loaded on platform trucks, which could be wheeled into highway trucks. Larger, heavier items which



Why, in one year, 73 companies paid 28% more for this Baker Gas Truck

The Baker Gas-O-Matic introduces a revolutionary new concept in automatic transmissions for gas-powered fork lift trucks. Instead of a torque converter, it employs a variable voltage generator—integral with the gasoline engine—and an electric motor.

The initial cost of this truck is about 28% higher than conventional clutch-type gas fork trucks. But . . . operating and maintenance costs are extremely low—in line with the higher priced battery-powered electrics. Moreover, frame, uprights, steering assembly, drive axle, etc.—in fact 90% of Gas-O-Matic's components—are standard Baker electric truck parts which always last 10 years or more.

Gas-O-Matic users have proven that

1. Fuel savings, originally estimated by our engineers as 40%, are actually in excess of 50% over ordinary gas trucks.
2. Depreciation costs are less because truck can be amortized over 9 years instead of 5.
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These Gas-O-Matic customers recognize the "lower-first-cost" fallacy—many of them have re-ordered for the second and third time—based on their experience with these trucks.

Write for complete information about this unusual fork lift truck.

Baker

handling equipment

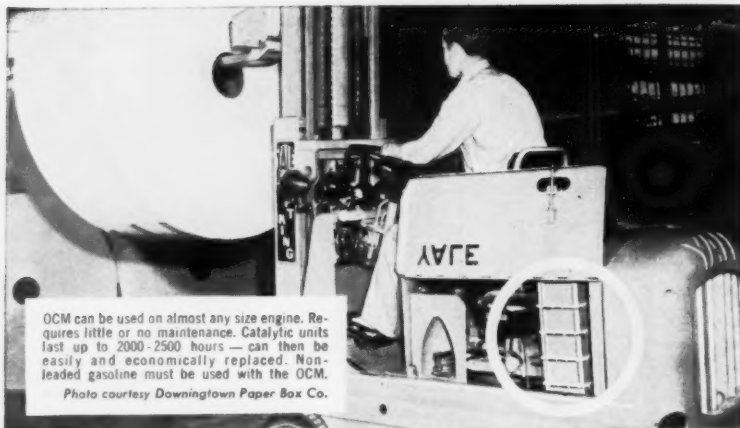
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5GE2



OCM can be used on almost any size engine. Requires little or no maintenance. Catalytic units last up to 2000-2500 hours — can then be easily and economically replaced. Non-leaded gasoline must be used with the OCM.
Photo courtesy: Downingtown Paper Box Co.

KILLS DANGEROUS CARBON MONOXIDE FROM GASOLINE AND LP-POWERED EQUIPMENT —Also Eliminates Hydrocarbons— OCM CATALYTIC EXHAUST

Now you can operate lift trucks, bulk handling trucks, stationary engines — any type of gasoline- or LP gas-powered equipment — efficiently, safely, in even closely confined areas. For the OCM Catalytic Exhaust eliminates 95% or more of the deadly carbon monoxide, and 90% of the hydrocarbons, from the exhaust gases.

The OCM Catalytic Exhaust is made to replace standard engine mufflers. It's now available as optional factory-installed equipment from leading manufacturers, such as Buda, Clark, Yale & Towne, and Lincoln-Schlueter. Or it can be easily installed on present equipment by your own mechanics.

Wherever you operate gasoline- or LP gas-powered engines indoors — even part time — the OCM Catalytic Exhaust means an end to fume-caused headaches, eye irritation, and nausea. It means more efficient use of equipment, plus greater employee productivity and morale. Write now for complete information and the name of your nearest supplier.

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WAYNE, PA., U.S.A.

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Fume elimination processes and equipment for internal combustion engines — for incinerators — for consumer products — and for industrial air pollution control and heat recovery.



FOR FORK TRUCKS



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New OCM Dieseler reduces below objectionable levels harmful, irritating exhausts from any 4-cycle diesel engine when running at or over 60% load. Write for details.



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MODERNIZING WAREHOUSE

Continued

had to be rigged out were handled by the crane upon arrival.

The problem of moving materials for bin and shelf areas was simplified by providing wood boxes, nine of which could be stacked on a pallet in three layers.

When moving day arrived, contents of shelving was transferred to the wood boxes. Sheets of paper were used as separators between items in boxes if they were not unquestionably different. Materials not clearly identified by stock numbers were marked, and items were kept in reasonable sequence of stock numbers as they were moved.

As soon as shelving was emptied, it was knocked down. Many of the 10-foot uprights were cut to seven feet. Shelving was transported to the new building and erected immediately.

Floor trucks not needed immediately at the new warehouse were, along with a supply of pallets, put to use clearing the old building.

The first material to arrive was stacked on pallets and placed in pallet racks or stacks according to the detailed plan. Next, compartment boxes arrived and were readily placed. Then came the pallet loads of nine boxes. Pallets were placed in the shelf area and contents of boxes transferred to shelves in proper sequence (according to previously placed shelf labels).

As soon as boxes and pallets were unloaded, they were returned to the old building for reloading. On the afternoon of the eighth working day, order-filling was resumed. The first shipments from the new location left the following day.

**Your Inquiries Get
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Please send complete information on

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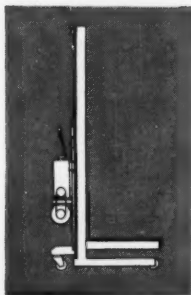
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REVOLVATOR

SINCE
1904



Shown at left
is Uplifter
loading high-
way truck.



**Revolvator
Uplifters:**

1000 lb. *
capacity — plat-
form length 24",
platform width 24",
lift 62".

2000 lb. *
capacity — plat-
form length 30",
platform width 30",
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REVOLVATOR UPLIFTER PORTABLE ELEVATORS you benefit by over 50 years of experience

Multiple use, multiple purpose Revolvator Uplifters, products of 50 years of engineering know-how, solve handling problems throughout all industry. Ideal for shop usage, Revolvator Uplifters also speed handling in the shipping department with equal efficiency. The Uplifter is ideal when no shipping dock is available. Electrically-powered Uplifter portable elevators are available in either "plug-in" or battery operated models. Platform and load are lifted by means of a

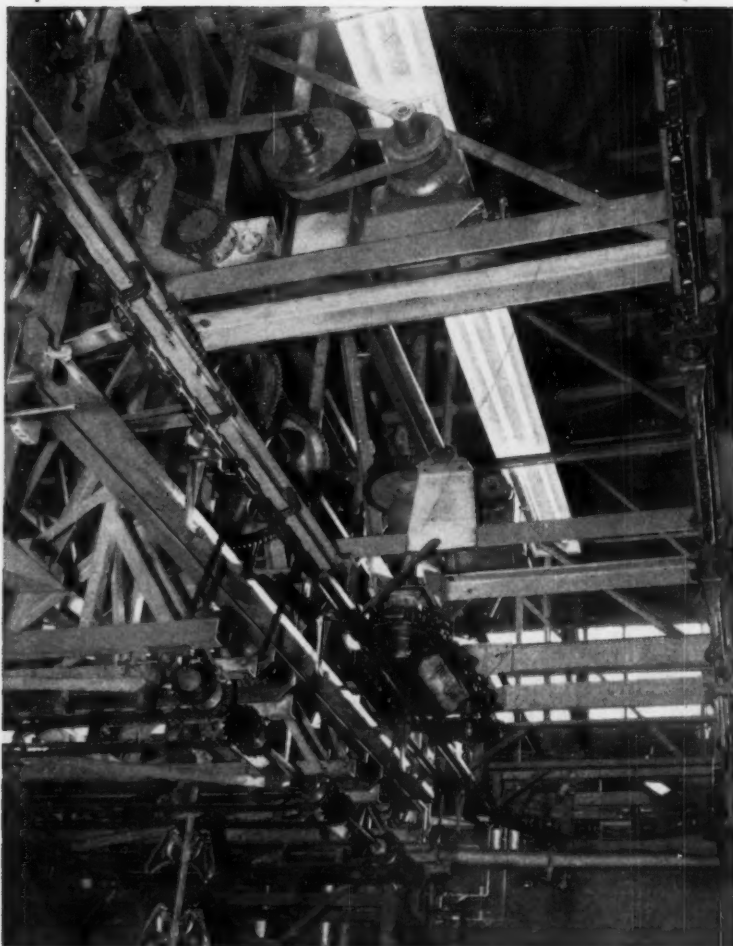
highly efficient motor-driven pump, activating a hydraulic ram and two roller chains, guaranteeing safety and ease of operation. Zee bar construction in uprights assures no sway, no binding of the rollers. Today write for full information.

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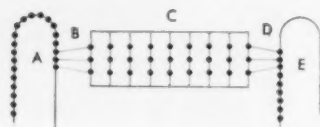
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Ultra-Timed and Synchronized FULLY AUTOMATIC MATERIAL HANDLING SYSTEMS



The installation illustrated handles three individual loads simultaneously. The loads unhook from conveyor "A", pass through transfers "B", hook to cross-bar conveyor "C". Operation completed, loads unhook, transfer through "D" to "E".

This is one of the scores of special-purpose material handling systems designed by Allied. Allied Studies your problem, Designs—Fabricates—Erects the units or systems needed to solve the problem.

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Ask for a
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INTEGRATED HANDLING . . .

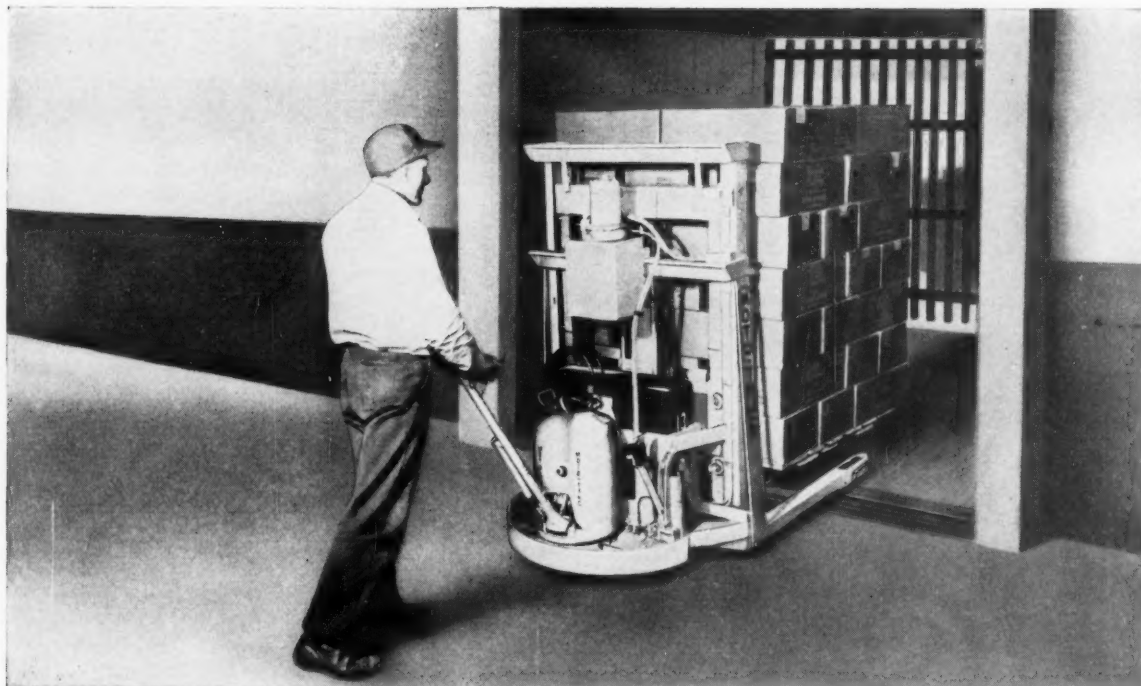
(Continued from page 85)

substantial number of objections from production employees who feared they wouldn't be able to keep up. By the time the Franklin Park unit was opened, conveyorization had lost its stigma and many workers requested a shift to the new plant because of the protection it affords against work overloads.

Damage to components, especially TV cabinets, has been "substantially reduced," thanks to conveyorization, according to Gieffers. "Pushalong time"—the period formerly required to move work from one station to another—has been eliminated. At Motorola, this amounted to about four percent of the production employee's time per unit. The improvement may not seem very large, but, as Gieffers points out, "In this business, you may work for years to get a one percent improvement in production efficiency."

With the integrated system it is far easier to adjust production to the inevitable interruptions in the flow of raw material that arise in an operation where several suppliers are involved. Since the conveyors store as well as transport components, and are connected to a large warehousing space, an interruption on one production line can be balanced on others by drawing upon in-process inventories.

Line changeovers are reduced for more-or-less the same reason. Semi-completed models not in current production can be stored so that, when needed, they are available immediately. Without storage facilities, each model would have to be produced only when, and as, ordered. Without the adaptable system, Gieffers explained, it would be possible to store these semi-finished stocks, of course, but getting them to the final processing lines would tie up an excessive quantity of labor and equipment.

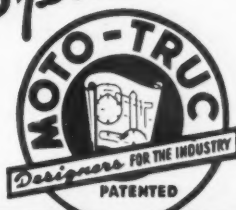


ON THE ELEVATOR... *with* FREIGHT CAPACITY to Spare!

Excessive re-handling of loads because of limited elevator capacities is often completely eliminated with Moto-Trucs. The light, yet powerful compactness of a Moto-Truc lets you move load and truck into an elevator with weight capacity to spare.

The complete line of Moto-Trucs are designed and built for economical, space saving operation. Inch for inch . . . pound for pound . . . Moto-Trucs are the smallest, yet the most powerful walkie trucks in the world.

Write for Bulletin No. 53 . . . it covers the complete Moto-Truc line.



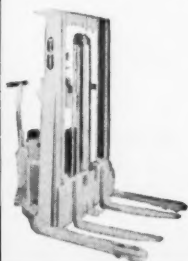
The MOTO-TRUC Co

Representatives in Principal Cities

1955 E. 59th St. • Cleveland 3, Ohio

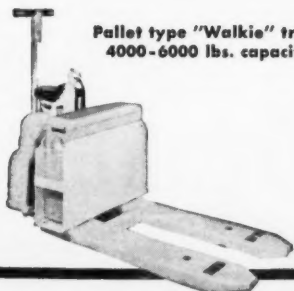
Pallet . . . Platform . . . Hi-Lift Trucks
The Originators of the Walkie and
Small Rider Type Truck.

Hi-lift "Walkie" type
3000-4000 lbs. capacity

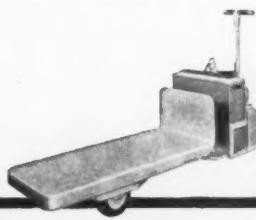


a MOTO-TRUC for every purpose...

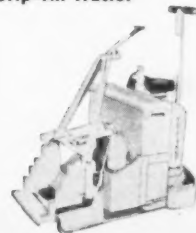
Pallet type "Walkie" truck
4000-6000 lbs. capacity



Platform "Walkie" type
4,000-10,000 lbs. capacity

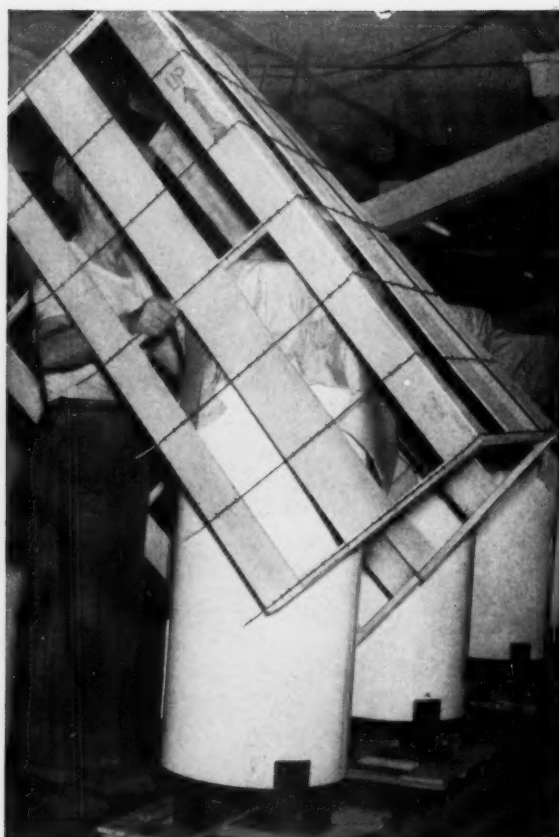


Grip-All Tractor





This coal circulator weighs 539 pounds. It's assembled on base of wire-bound crate. Total man-hours for packing come to just 6 minutes.



Water heater bases are bolted to wirebound crate base before assembly. At this point, only 3 minutes are needed to complete crating.

Appliance maker uses 17 General-engineered wirebounds to cut packing costs on 47 items

Gray and Dudley Co., Nashville, Tenn., obtained the figures on packing and shipping costs using wirebounds designed by General Box Company, and compared these with the costs of making their own shipping crates. The study covered 47 different designs and sizes of electric water heaters, electric and gas ranges, oil circulators, coal circulators, cast iron ranges, army ranges, and their spare parts. Wirebounds won a clean decision.

Comparison was made on the basis of man-hours for packing, shipping weights, and over-all packing costs. In the case of a 539-pound coal circulator, for example, the saving was 80% in man-hours, 10% in shipping weight, and 16% in over-all packing cost.

The assembly and packing operations were integrated to save handling costs; noise and dust were eliminated, and the appearance of the products in transit was improved. The crated products have a Safe Transit O.K., too.

It's easy to find out how much General-engineered wirebounds can save you. Let us send a man. No obligation. Just write General Box.

Factories: Cincinnati; Denville, N. J.; East St. Louis; Detroit; Kansas City; Louisville; Milwaukee; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston.

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General Box

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NOVEMBER 1955

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An Easy Index to This Month's Advertisers

Are you looking for a particular type of packaging and shipping equipment? Listed below are advertisers according to type of product they are advertising in this issue. We have attempted to make your job a little easier by listing them as often as possible. To use this index, find the type

of product in which you are interested . . . turn to the advertisers listed under that product . . . circle the correct numbers on the reader service card, mail it, and you'll get complete information in a jiffy.

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COLORS that roll on dry!



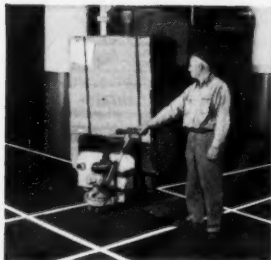
Seal, insulate, protect, and preserve; identify and code—these are among the hundreds of uses for "SCOTCH" Brand Plastic Tape No. 471. This versatile tape comes in eight vivid colors, plus transparent. It sticks at a touch to any clean, dry surface; is thin, tough, stretchy; is unaffected by acids, greases, salts, and most common commercial solvents; seals out moisture. For the complete story, write on your letterhead to Dept. CG-115.

PLASTIC TAPE

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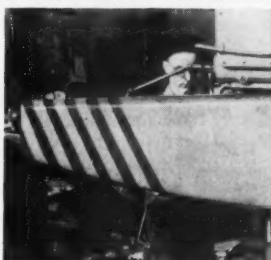
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MARK LANES for traffic, define storage areas the fast *dry color* way with "SCOTCH" Brand Plastic Tapes. Tape is easily applied... ready for traffic immediately.



INDICATE corners, obstructions, emergency equipment with bright, easily seen markings of "SCOTCH" Plastic Tape. Tape sticks to any clean, dry surface.



WARNING SYMBOLS are easily made with "SCOTCH" Plastic Tapes. Eight colors let you "code" markings. Tape may be safely used near exposed electric terminals.



THIS FREE FOLDER describes "SCOTCH" Plastic Tapes in detail. Write on your letterhead: Dept. CG-115, Minnesota Mining and Mfg. Co., St. Paul 6, Minn.

The term "SCOTCH" is a registered trademark of Minnesota Mining and Manufacturing Co., St. Paul 6, Minn.
Export Sales Office: 99 Park Ave., New York 16, N.Y. In Canada: P.O. Box 757, London, Ontario.

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The SIPMHE Short Course...

The lecture program presented in conjunction with the 10th Industrial Packaging and Material Handling Exposition was probably the most outstanding in a long series of college-level short courses. From the many excellent papers, FLOW abstracts two in this issue, plans others for the future.

The Selection of Material Handling Equipment

By R. I. Reul
Staff Industrial Engineer
Food Machinery & Chemical Corp.

FIRST basic requirement for the successful introduction of the use of new, more efficient material handling equipment is technical competence on the part of the person making the selection. There is no substitute for an encyclopedic knowledge of available equipment plus a thorough understanding of the capabilities and limitations of each type.

The second basic requirement is a real understanding of human motivation and how it can be influenced. While it is true that many of our new material handling techniques employ expensive and complicated machines which require a great deal of "know-how" to operate properly and maximize their utilization, we should never forget that these machine must be bought, maintained, and operated by men.

The third basic requirement is provision for careful, unprejudiced analysis of each problem. In each case, the true facts must be carefully ascertained. The various alternatives must be determined, explored and critically evaluated. Then, when all the facts are in, the best solution can be logically selected, taking into consideration the technical, investment, operating cost, and human aspects of the problem.

There is a feeling that the term "material handling" has often been used glibly to describe a multitude of quite different concepts. Probably the narrowest concept has been that defining material handling as, "the movement of materials, supplies and finished products

within a plant." A somewhat broader definition that has often been expressed is, "all handling short of that carried out by public transportation facilities." The widest possible interpretation includes all operations carried out on materials, supplies, work in process, and finished goods which cannot be classified as manufacturing steps and which do not add value to the product.

It is my personal conviction that the latter, the broadest concept, is essential if maximum results are to be achieved. It is my contention that from the time raw materials, supplies or component parts leave a vendor's premises, 'til the finished products are delivered to the customer's point of use, all transportation, storage, packaging, handling, etc. should be considered an integral part of "material handling".

To illustrate how all the afore-mentioned factors are inextricably interwoven, let us turn to the chemical industry. Suppose that we have a customer that purchases 200,000 pounds per month, or approximately 2½ million pounds per year, of a certain chemical. The product is dry, granular, free flowing, non-corrosive and non-hazardous. The customer uses this material in bulk and is actively interested in minimizing delivery and handling costs.

Years ago, this material would have been packed in wooden barrels and shipped in railroad box cars. Both the barrels and the bracing necessary for shipment were expensive. In more recent times, we have learned to package such materials in multiwall bags. This greatly reduces both container and car bracing costs. Freight costs are also slightly reduced due to lower package tare weight and reduced dunnage. These savings can be passed along to the customer.

However, because of the much smaller weight packed in paper bags we must handle many more pieces. This tends to increase costs. To solve this problem, we re-

(Continued on page 153)

TAPED BOXES



ARE BEST

You get even corners for good stacking . . . greater safety for the handler . . . better sealing against dirt and dust . . . no damage to merchandise — a hazard from other methods of closing. Yes, taped boxes are best — and best of all when made with non-asphaltic, glass reenforced LOKABOX, strongest of them all — or SISAL TAPE, standard of the industry.

AMERICAN SISALKRAFT CORPORATION, ATTLEBORO, MASS., CHICAGO 6, NEW YORK 17, SAN FRANCISCO 5



Co-ordination of Packaging and Material Handling

... With Production, Sales, and Distribution

By H. G. Podlesak,
Vice President—Executive Engineer
Kraft Foods Company

CO-ORDINATION of packaging and material handling with production, sales, and distribution is an extremely broad subject which cannot be described in a few simple sentences or covered adequately by an easy set of rules.

We should try first to understand just what it is that production, sales and distribution want and need from those interested in packaging and material handling. Many times we are apt to think of it in two words—"the impossible." I am sure, however, that if we were to trade positions and responsibilities, they would say the same things of us. We must therefore weigh very carefully all of their requests even if at first glance some may appear to be in the impossible class. This is the first step in co-ordination through co-operation.

The desire of sales, while being most nebulous, is probably the simplest to define. Given a good product, they want it in a shape or form which will appeal to the user. This appeal may be eye-appeal such as style or color or it may be use-appeal because of size or shape. In some lines of manufacturing these desires can cause packaging and material handling engineers many headaches.

A good sales organization is energetic, but at the same time this quality can cause it to conceive new ideas concerning the product much more quickly than they can be kept pace with. There have been cases in which new color printing on wrappers and a new size of bag were ordered at the request of sales, only to find after waiting six to eight weeks for delivery, sales no longer wants that color because the competitor has it or the bag size is wrong. Joe Doakes is now packing his product in 6¼-ounce bags, and they must have 6¼-ounce bags. I could give many other examples,

but the point is that here is where co-ordination can step in and do a job.

Distribution Problems

For purposes of this discussion we will consider the more general case of distribution embracing that field between the factory shipping dock and the hands of the ultimate user or consumer.

This group has many problems but in general they are concerned with having the product reach the consumer as quickly as possible in first class condition at the lowest possible cost whether the company pays this cost or the consumer pays it. In many cases this cost is shared so that both parties to the transaction must be kept satisfied. The consumer or ultimate user is interested only in the final cost of product when it is in his hands.

In order to do all the things to satisfy the customer, distribution has many detail problems. Perishable food products, for example, must be kept refrigerated throughout the entire trip whether directly to or through warehouses to the final sales outlet. Even at this point the product must be able to fit into the pattern of refrigeration in the outlet and beyond that it must fit into the refrigerator pattern of the ultimate consumer.

The size of the shipping unit is important to distribution. A container which is too large is difficult to handle and when opened in a store, can cause a jumbled stock resulting in damaged units.

Containers must be strong enough but not to the point where they become heavy and clumsy. Sizes of containers should be such, whenever possible, that all the space in a transportation vehicle is used efficiently.

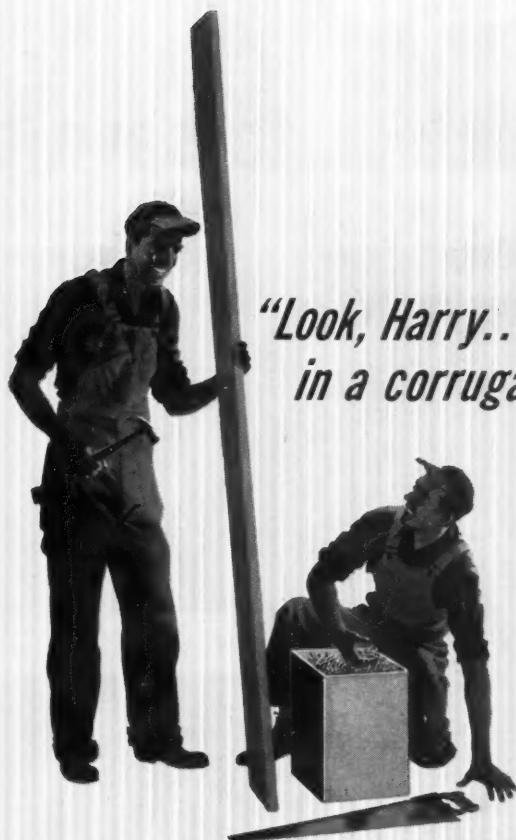
Production Problems

If we think of packaging in terms of the final form of the product, the machinery and equipment to do this job must be designed to be as simple as possible consistent with production capacity demand. The probability of change in shape and size must be considered very carefully. This is especially important in products having annual model changes.

Machinery and equipment must be simple in design from a maintenance standpoint. It is particularly true in the food industry where machinery must be taken apart at least once a day for thorough cleaning for reasons of sanitation.

Packages or containers must be provided for holding or storing partially fabricated materials. The design of these is an extremely important factor in product costs.

(Continued on page 142)



*"Look, Harry...nails
in a corrugated box!"*

Know why? Because H&D's practical Hevi-Duty box weighs only half as much as the wooden nail keg...takes a quarter less space...stacks more neatly, handles easier, puts together faster, provides excellent printing space and costs much less in the first place.

Small wonder nail-makers (and countless other manufacturers) are turning to corrugated packaging in general...to Hinde & Dauch in particular. Why not let us solve your packaging problem?



HINDE & DAUCH

Division of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING • SANDUSKY, OHIO
13 FACTORIES • 40 SALES OFFICES

AIM



to save packaging



Bundling cans with Acme Steel Strapping assures 50% faster assembly, better securement, safer shipments. Idea No. S2-4



The F-1 Strapping machine automatically tensions, cuts and welds Steelstrap for faster production line packaging. Idea No. S4-1.



Better securement with steel strapping permits safe, more economical shipment of water heaters. Idea No. U1-1.



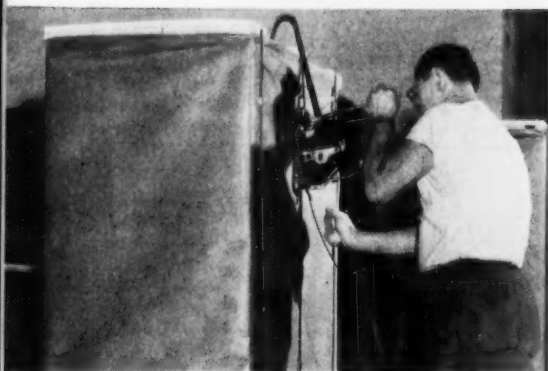
To realize more floor storage space, containers are assembled, and wire stitched as needed. Idea No. W1-6.



Fastening motors to wood bases with steel strapping resulted in a 10% saving in time and labor. Idea No. S7-6.

and shipping costs with these

Acme Steel ideas



Skids of paper are protectively wrapped and securely banded with steel strapping for shipment. Idea No. S3-12.



The Acme Steel Silverstitcher speeds carton assembly, gives in-transit protection of tacks and nails. Idea No. W1-2.

Acme Steel Strapping and Stitching ideas like these are but a few of hundreds that could conceivably work profits for you. They assure faster handling, less material expense, better use of warehouse space, better product protection and safe delivery.

Today, perhaps now, an Acme Idea Man is analyzing the packaging, handling and shipping methods of a company somewhere near you. His training, experience and ability to adapt wire stitching and steel strapping methods to your packaging operation are available to you without obligation. Why don't you get a free analysis now. Your Acme Idea Man will observe present methods, demonstrate Acme Steel equipment and recommend the best systems for you. Call him at your nearest Acme Steel office listed in the classified directory. Or send the coupon below for further information.

ask your ***Acme Idea Man**
to help solve your problems

ACME STEEL PRODUCTS DIVISION
ACME STEEL COMPANY 
2840 Archer Avenue, Chicago 8, Illinois



These valuable Wire Stitching, Steel Strapping and Unitizing Books are yours free. Each describes scores of profitable cost cutting, time saving ideas made possible through the use of Acme Steel tools, materials and the ingenuity of an Acme Idea Man. Send today!

Circle No. 2 on Reader Service Card for more information

ACME STEEL PRODUCTS DIVISION, Dept. LM-115

Acme Steel Company
2840 Archer Avenue, Chicago 8, Illinois

Please send the new Acme Steel ☐ Wire Stitching Catalog ☐ Steel Strapping Catalog ☐ Unitizing Book ☐ Have an Acme Idea Man call

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____



Strapping Cart Speeds Packaging



DESIGNER of Bruning Co.'s special strapping cart is shipping supervisor, August Gatto. Cart eliminates the lifting of cartons to slip strapping underneath.

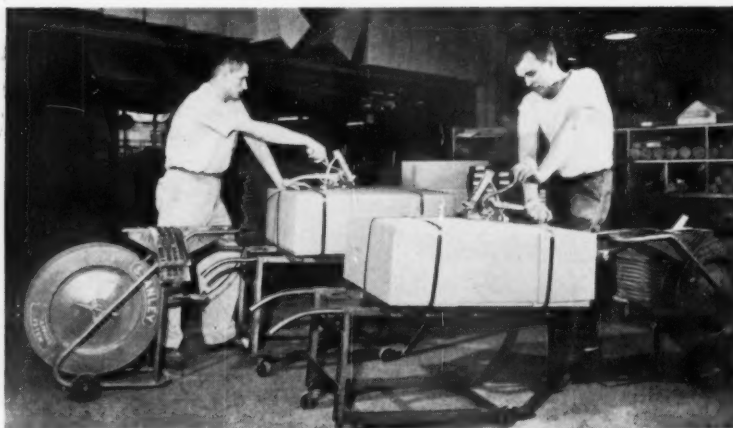
PACKAGING OPERATION now requires about half the time of previous method. Each man staples, loads and straps cartons.

Photos courtesy The Stanley Works, Steel Strapping Division

PASSING steel strapping under cartons weighing from 75 to 350 pounds was tedious and time-consuming at Charles Bruning Co. until August Gatto, shipping supervisor came up with a solution that speeded up the job and eliminated the labor of hefting cartons.

Bruning is a maker of sensitized papers, cloths and films which require special protection from packaging. Any damage will admit light and spoil the product. The shipping carton is made of corrugated paper specially reinforced where steel strapping exerts its maximum pressure.

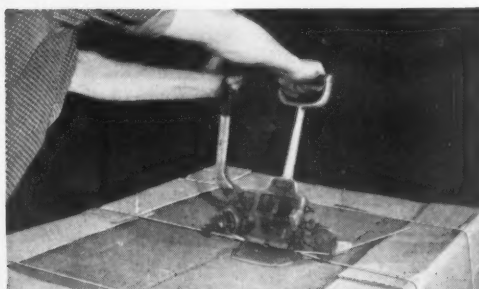
Because cartons had to be lifted to pass the strapping underneath, Gatto developed a grid of $\frac{3}{4}$ -inch by two-inch channel irons. Special carts and hand trucks were equipped with the channels. With them, it takes a man about 10 minutes to staple, load and strap a carton—about half the time of any previous method.



USS Gerrard ties *ANYTHING* you've ever seen



The bricks are loaded onto a "jig" in lots of 500. The corrugated covers are slipped into place, and the unit is securely reinforced with USS Gerrard Round Steel Strapping.



Strapping a 500-brick unit, using the USS Gerrard Model K machine and 12-gauge USS Gerrard Round Steel Strapping.

"USS Gerrard Steel Strapping enables us to balance our workload, serve our customers better, save storage space, and reduce breakage"
says Glen-Gery Shale Brick Corporation, Reading, Pennsylvania

The Glen-Gery Shale Brick Corporation is the largest manufacturer of building brick in the East, with 10 separate plants operating in different parts of Pennsylvania. Here's how they have effected time and space savings by using USS Gerrard Round Steel Strapping.

• During the winter months—normally the off season for shipments—a large inventory of these 500-brick units can be packaged and stored. Then, in the summer when the workload is heavy, a trailer truck can be fully loaded with these USS Gerrard-strapped units by *only one man in just 15 minutes!* Before

the use of USS Gerrard Steel Strapping was adopted, this same job took *three men 35 to 40 minutes.*

• One of the major reasons the Glen-Gery Company began packaging their bricks was the demand of dealers and distributors for an easy-to-handle unit that would reduce *their* handling costs, save man-hours, and increase their storage space. The USS Gerrard-packaged units met all these requirements.

• According to the company, packaged bricks stay cleaner, and there is far less breakage—about 2 bricks per 800. As a Glen-Gery official put it—"In transit, the units start out secure and

they stay that way." Strengthwise, the company regards USS Gerrard Round Steel Strapping as the least expensive form of strapping. It "doesn't snag, or lose strength if it is gouged or nicked. It is safer and more effective than any other method for this type and weight of package."

* * *

It's time for you to try USS Gerrard Steel Strapping—both Round and Flat. Whatever your packaging-tying problem might be, our engineers can help you find the safest, most economical solution to it. Contact us soon.

GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: CHICAGO, ILLINOIS



USS GERRARD
Round and Flat **STEEL STRAPPING**

UNITED STATES STEEL



SEND FOR THIS NEW BOOKLET NOW

Gerrard Steel Strapping
2937 West 47th St., Chicago 32, Illinois

Please send me, free of charge, the new 36-page GERRARD Blue Book of Packaging.

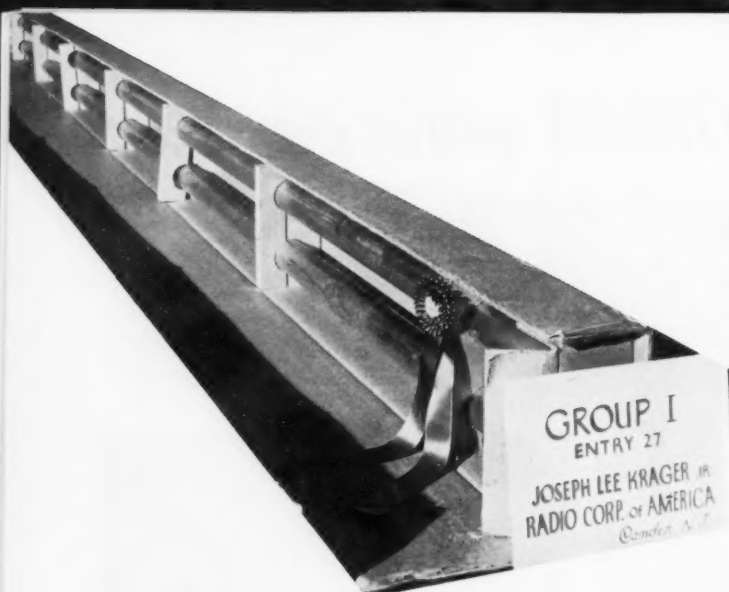
Name

Company

Address

City State

Circle No. 82 on Reader Service Card for more information



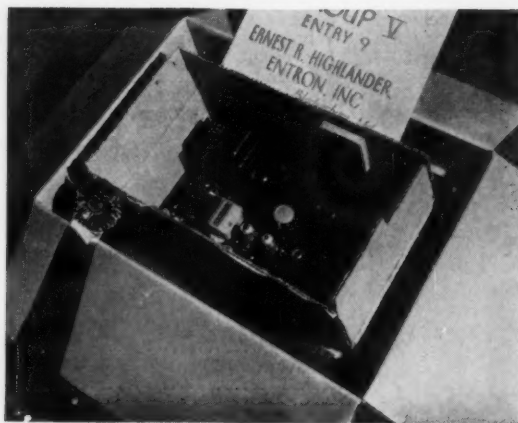
GROUP I (Corrugated or Solid Fibre Boxes)—Corrugated box for B/C transmission line, 3"-18" in diameter by 20' in length. Entered by J. L. Krager, Radio Corp. of America. Awarded Irving J. Stoller, best-in-show, trophy (left).

Prize-Winning

JUDGES of the 1955 National Protective Packaging and Material Handling Competition were confronted with a record number of entries in each of the seven categories. Factors considered in judging groups I-VI were: (a) safety—that is, the degree of product protection afforded; (b) conformance to carrier requirements; (c) ingenuity in application of materials and methods; (d) ease of handling; (e) economy (in use of material, savings in weight



GROUP II (Nailed Wood Boxes and Crates) Breo Freeman Jr., Specifications Packaging & Engineering Corp.



GROUP IV (Cleated Panel Boxes) Entered by R. Salembier Jr., Specifications Packaging and Eng. Corp.

GROUP V (General) Corrugated box for automatic gain control. E. R. Highlander, Entron, Inc.

Packages—1955

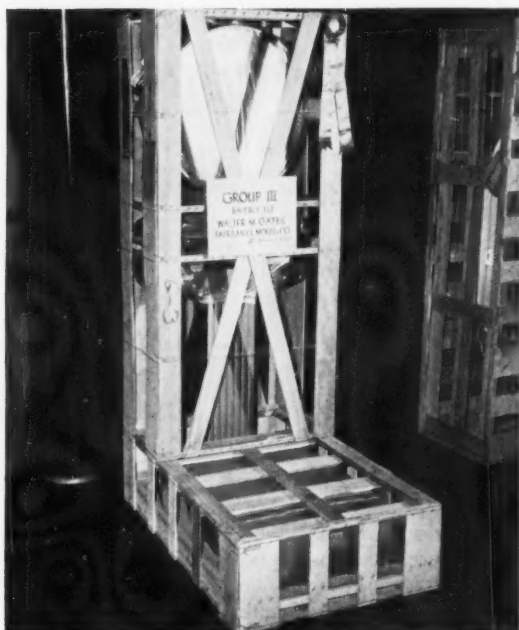
and prevention of loss); (f) practical utility from over-all review.

In Group VII (Material Handling) judging was on: (a) reduction of handling costs; (b) savings in warehousing; (c) increase in plant capacity; (d) reduced inventory; (e) improved protection; (f) reduced hazards; (g) improved working conditions; (h) speedup of delivery.

Photographs on these pages are of first-prize winners in each group.



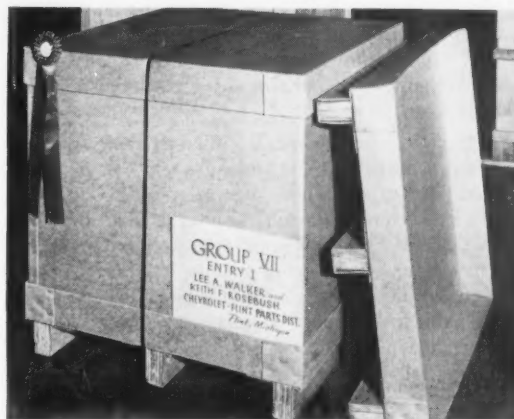
HAROLD JACKSON TROPHY (for package incorporating best interior packaging). Wirebound box for cotton gin saws. Wooden dowel fits into center holes of saws and end pieces hold dowel in place. Chemically treated paper protects against moisture. Entered by T. A. Graves, Continental Gin Co.



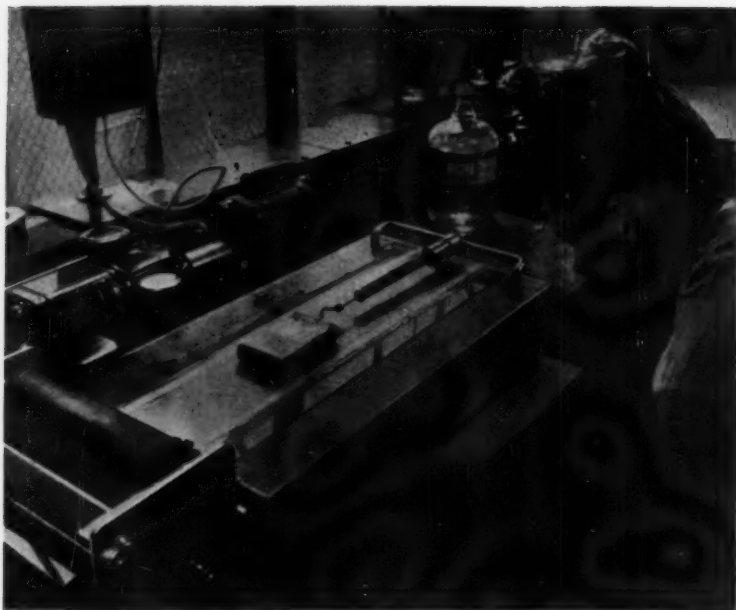
GROUP III (Wirebound Boxes and Crates) Entered by Walter M. Bates, Fairbanks, Morse & Co.



GROUP VI (Export Packages) Entered by H. A. Kilmer, North American Aviation, Inc.



GROUP VII (Material Handling) L. A. Walker and K. F. Rosebush, Chevrolet-Flint Parts Dist. Dept.



SLIP TEST measures force exerted when friction between two pieces of film is overcome by tension. Slip of plastic film is important factor to both bag maker and to packager in mechanical handling operations.

Testing Plastic Packages

Utilizing methods and means ranging from electronic bombardment to lacrosse balls, scientists in an experimental packaging laboratory at Bakelite Co., correlate relationships of resin properties and packaging performance, all aimed at producing better resin which in turn will result in better packaging materials.

DEVELOPMENT of new and improved packaging draw materials to answer some of the major problems of the packaging field is the primary aim of a special experimental packaging laboratory established by Bakelite Co., a Division of Union Carbide and Carbon Corp.

In the laboratory, which is staffed by some 30 scientists, the average Bakelite resin granule will be transformed into experimental film samples for complete checks by bacteriological, horticultural, industrial, biological, chemical organoleptic analytical and chemical and mechanical-engineering groups. Utilizing methods and means ranging from electronic bombardment to lacrosse balls, these groups of scientists will correlate the relationships of resin properties and packaging performance, all aimed at producing better resins for packaging materials.

At present, the laboratory staff is divided into four teams which act both independently and co-operatively in solving major packaging problems. Programs already under way deal with horticultural and food technology, mechanical packaging operations, printing on plastics and properties of films and packages.

Investigations of horticultural and food technology is by review of applications of plastics for food, fruit and produce under a wide variety of storage conditions. Here, organoleptic testing, testing by taste and other sensory perception, takes place in the form of "taste panels" who sample such food products as apples, poultry and cheese to measure the effects of various storage conditions on packaged materials. Consideration is given to both the effect of the food on the wrapper and of the wrapper on the food.

(More on page 122)

INDUSTRIES EVERYWHERE...

solve shipping problems with

versatile, low-cost
Continental fibre drums



PAYOFFPAK® untangles some knotty problems in wire processing. By automatically packaging wire as it is drawn, Payoffpak has revolutionized the handling of wire! Continental's Payoffpak fibre containers put an end to the many costly operations involved in producing split coils . . . eliminates reels, manual handling and protects against dirt, rust, corrosion and snagging. What's more, light-weight Payoffpak can hold 600 lbs. of wire. High stacking strength means you can use maximum storage space, too.

Payoffpak is just one of many fibre containers in the Continental line. Name any product — dry chemicals, transformers, powdered foods — and Continental has a fibre drum that serves the purpose. So check into Continental's Leverpak, Fiberpak, Stapak, and its other fibre containers. You'll lower your shipping and operating costs, too. Call us soon.

Available in any size, style or design

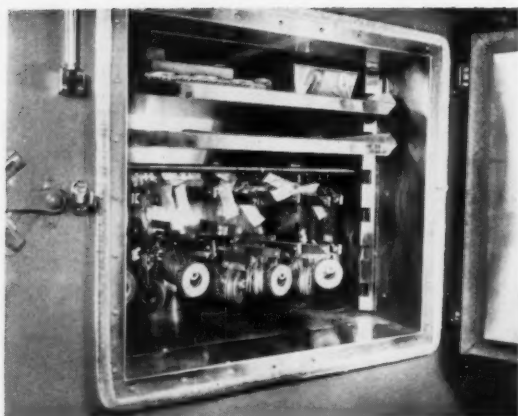


**CONTINENTAL
CAN COMPANY**

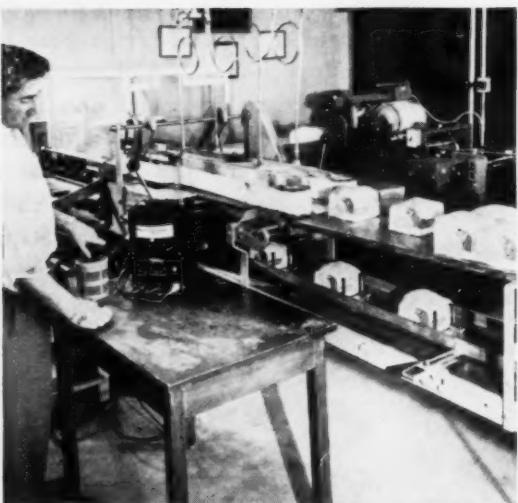
FIBRE DRUM DIVISION • VAN WERT, OHIO

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STRESS CRACKING conditions are simulated in oven. Strips smeared with active cracking agents of low volatility are hung in oven at controlled temperatures.



FOOD PACKAGING is also tested in Bakelite's laboratory. Investigations are conducted into all phases of packaging from preparation of produce before packaging to testing of final package. In top photo, fresh, washed lettuce is centrifuged dry before it is wrapped in plastic film. Standard endfold, overwrap machine is modified to pack heads mechanically, (bottom photo). Package consists of polyethylene over cardboard tray.

A mechanical package team works with the latest bag-making and over-wrapping equipment. Its purpose is to test packaging film and determine whether plastic films can be used on standard machines. Where necessary, modifications for the machines are developed. The testing extends to films of various thicknesses and orientation and is exhaustive in its efforts to determine the potentials of the films.

Additional work, being done in the search for better films through better resins, is the testing of various heat-sealing temperature characteristics of films. This program attempts to produce what is considered to be the best seal. The mark of success here is that the film itself should separate before the seal.

One recent development is the work done in fused heat sealing. This is the method in which the open end of the bag is gathered and fused into a solid cap which becomes the strongest part of the finished bag.

Printing Tests

Three major types of tests are being run to gather information on printing techniques on plastics. They include the treating of the film, the evaluation of ink composition and the application of coatings on the films. An integral part of this testing is the determination of the effect of these techniques on such physical properties as film-bursting strength and heat sealability.

Why A Bag Splits

Concerned by the lack of reasonable explanation of why a bag splits where it does when dropped with its contents, another team, the Evaluation and Consumer Packaging Group, is working out new and more reliable methods of testing the mechanical strength of plastic film bags. Bad drop tests are used in the course of this work—bags are filled with sand, potatoes and even lacrosse balls before they are dropped from increasing heights until they burst. The results of this seemingly simple test were correlated with accurate shrinkage tests to prove that bag strength depends, to a high degree, on the alignment of the long molecules of the plastic film. This, in turn, depends on the grade of resin and technique of film extrusion.

From these tests comes an indication of a method for controlling alignment of molecules that may well produce films of greater strength to save the inconvenience and added cost of split bags.

Another problem this team has dealt with is that of stress cracking and stress fatigue from constant movement of packaged material during shipping. There has also been activity in package design and in connection with environmental influences to prevent mis-application of polyethylene film. In order to facilitate this study and to make it more significant, the laboratory has special machines which simulate shipping conditions.

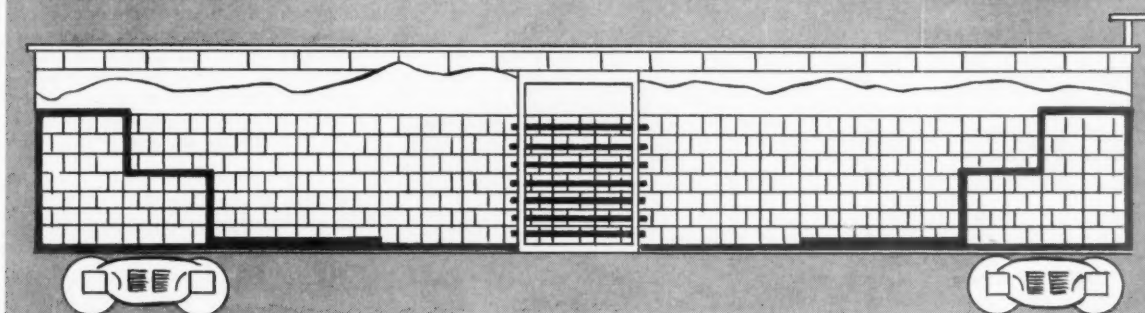
Other physical characteristics tested include sealability, gas permeability and moisture-vapor transmission, all vital to the manufacture, control and ultimate success of film packages.

Here's an Inside Tip:

Reduce Damage Claims

(By as much as 80%)

RETAIN WITH FIBREEN



GREY LINE IS FIBREEN RETAINER SHEET

Fibreen retained products stay safe and snug in transit — as a unit. Train jolting can't harm shipments because the Fibreen retainer sheet drawn taut keeps containers from being "pushed around" and smashed in end walls and voids. Result: Damage claims reduced as much as 80%!

AS A PACKAGE — VERSATILE FIBREEN HAS MANY PROTECTIVE ADVANTAGES

- **Want to package odd shapes?** Flexible Fibreen fits around irregular contours (machinery, for instance). Saves packaging time and money.
- **Want to seal against dirt and moisture?** Furniture manufacturers find Fibreen gives air-tight protection — products arrive at destination clean and dry.
- **Tough Fibreen stands up against rough handling.** Fibreen withstands rips and punctures. It's reinforced with steel-like, cross-laid fibres.
- **Want lighter shipping weights — and costs?** Compare Fibreen!

Available in widths of 36", 42", 48", 54", 60", 72", 84", and 96" — in several grades including non-asphaltic varieties. Write for free samples and packaging information.



AMERICAN SISALKRAFT CORPORATION

Dept. F-11, Attleboro, Massachusetts

Please send free samples and packaging information on FIBREEN.

Name

Company

Address

City.....Zone.....State.....

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Exposition Review

Re-Usable Shipping Container

The Ackermann Band-Box, a nestable, self-palletizing, compact storing, reusable steel shipping container. Set up in minutes, it can be banded with steel strapping to provide a strong box for inter-plant handling and storage, or inter-state shipping.

Ackermann Mfg. Co.
Circle No. 205

Machine Welds Strapping

Model F1 Strapping Machine produces a welded joint instead of conventional crimped seal joint. A semi-automatic machine which can be built into continuous handling lines.

*Acme Steel Co.,
Acme Steel Products Div.*
Circle No. 206

Versatile Framing Material

Almost anything can be built of Dexion Slotted Angle. Pallet racks, tables on wheels, box pallets, dollies, conveyor bins, shelving, roller conveyor stands, even mezzanines with stairways can be made with standard Dexion slotted angle and panels.

Acme Steel Co., Dexion Div.
Circle No. 207

Complete Line of Containers

With the addition of a line of corrugated containers, American Box Co. now manufactures wirebound, corrugated, cleated panel and nailed-wood containers. Result is said to be unbiased analysis of your specific problems with assurance that the best type of container is always recommended.

American Box Co.
Circle No. 208

Rubberized Curled Hair

RubbAIR padding-barrier material is

curled horse and hog hair permanently bonded with natural latex by vulcanizing. It is available in sheet form, cut to any desired size, as die-cuts, or laminated for special requirements.

American Latex Fibre Corp.
Circle No. 209

Plastic Molding Service

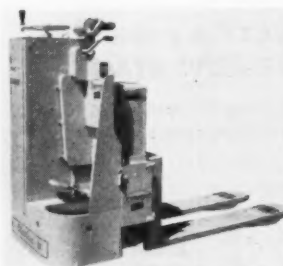
Every type of plastic molding (injection, compression, extrusion) is available to you for any problem you wish solved. Chemical and mechanical laboratories are ready to further help in working out problems in design and mass production.

American Plastics Corp.
Circle No. 210

"Pillow" Package For Your Product

Hairflex rubberized curled hair is said to bring your breakage figure down to practically zero. It is said to be lightweight, highly resilient, uniform in construction, free from dust and moisture-and-fungus-resistant.

Armour & Co. Curled Hair Div.
Circle No. 211



Truck For Congested Areas

A pallet truck that works in narrow aisles and maneuvers easily in close quarters. Called the Transveyor, it has a capacity of 4000 pounds and is 29½ inches long, less forks.

Automatic Transportation Co.
Circle No. 212

Brief descriptions of outstanding products shown in each of the exhibits at the 10th National Industrial Packaging and Material Handling Exposition. Each item has been given a Reader Service Number to permit you to get additional information in a hurry on any product.

Attachment For Palletless Handling

A combination fork truck attachment for palletless handling of equipment in crates or in drum-type fibre cartons. Combines single lift device with a special addition for handling the cartons. Strong enough so that four cartons containing refrigerators, washing machines or ranges can be lifted at once.

Baker-Raulang Co.
Circle No. 213

Peelable Plastic Coatings

Latest peelable plastic coatings (Thermo-Cote). Equipment for handling the coatings.

Bischoff Chemical Corp.
Circle No. 214

Cradle For Your Product

Blocksom Paratex is said to cradle your product to assure shockproof security. It combines the natural resilience of latex rubber with the spring-like action of curled hair.

Blocksom & Co.
Circle No. 215

Shock-Resistant Bearing Package

A shock-resistant plastic package for bearings. It can be mailed safely under all conditions and re-used indefinitely. Consists of a plastic vacuum-formed shell containing the bearing set into an outer shipping sleeve of spiral-wound fibre.

Cargo Packers, Inc.
Circle No. 216

Batteries With Added Power

The C & D 66 and 125 industrial truck batteries are said to give at least 10% more capacity in standard size trays for your truck. In truck operation, that means at least 10% longer duty cycle.

C&D Batteries, Inc.
Circle No. 217

Cushioning Nomogram

A non-technical technique for determining how best to use Celotex Neutral pH Cane Fiber Board in packaging and cushioning heavy, difficult-to-pack items. The nomogram is free without cost or obligation.

The Celotex Corp.

Circle No. 218

Fibre Drums

The Leverpak has an exclusive lever-actuated locking band which locks like a vise . . . takes a pilfer-proof wire seal . . . yet opens in seconds. Drums are available in 12 through 75-gallon capacities to carry up to 400 pounds.

Continental Can Co., Fibre Drum Div.

Circle No. 219

Extra-Flexible Belt Conveyor

The Unitable Conveyor, a power-operated steel slider bed type belt conveyor designed for flexibility to meet modern production requirements. Flexibility is made possible through interchangeable parts.

Conveyor Specialty Co., Inc.

Circle No. 220

Dipping Tanks

Latest improved electrically heated U/L approved wax heating and plastic dipping tanks. Tanks displayed were specially designed for use in industrial and military packaging in accordance with specification MIL-P-116B.

D. C. Cooper Co.

Circle No. 221

Transit Cases

Protection for electronic components, instruments, and fragile equipment during field use and transportation is afforded by Craig Transit Cases. They are custom engineered and designed to the physical and operational characteristics of the equipment to be transported.

Craig Machine, Inc.

Circle No. 222

Protective Papers

Papers (Impregnated-coated-laminated-reinforced-flexible); bags-sacks-liners-covers (single and multiwall construction using all types of material to carry, cover or protect all types of products.)

The Cromwell Paper Co.

Circle No. 223

Metal Conveyor Belts

Cyclone Metal conveyor belts are: flexible; sanitary; immersible in water, oils, chemicals; temperature resistant.



One of the twelve strapping stations set up by Quaker Export Packaging Co. to handle "Operation Poinsettia."

Signode power machines strap 600,000 cartons of food for export in 30 days!

Start November 14th and package 3,592,500 food parcels for shipment overseas in time for Christmas? It was done—in an amazing demonstration of fast organization and sustained effort, with the parcels packed six to a carton, cartons sealed, and reinforced with two steel straps.

Says Benjamin Bernstein, President, Quaker Export Packaging Co., Inc., Philadelphia, "In approximately thirty working days we applied over 1,250,000 straps. During the entire operation there was no major breakdown. This proves the excellence of the design and engineering of the machine, and the excellent service and installation."

This is unitizing on a big scale (and on a hurry-up basis . . . in little more than a week after the first call from Quaker Export, Signode had delivered the power strapping machines and set them up for operation).

Dependability—and experienced, helpful follow-through—are part of every item in the complete line of Signode hand and power tools for tensional steel strapping. For additional information, or a survey of your needs, write,



2618 N. Western Ave., Chicago 47, Ill.

Offices coast to coast—Foreign subsidiaries and distributors world-wide.

In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

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EXPOSITION REVIEW

Continued

They are said to cut processing costs, speed operations and increase product output.

*Cyclone Fence Dept.,
American Steel & Wire Co.
Circle No. 224*

New Battery Development

The MC Edison Nickel-Iron-Alkaline storage battery features 25% more capacity than any Edison Nickel-Iron Alkaline battery heretofore available. Although capacity has been increased so much, width and length has remained the same.

*Thomas A. Edison, Inc.
Circle No. 225*

Tarpaulins

A complete line of shipping room supplies and Government specification packaging materials. Featured Hercules tarpaulins manufactured by Fellowcraft Engineering, Inc.

*Elbee Excelsior Co.
Circle No. 226*

Cushioning Wrap

Secure-Rap is manufactured in eleven standard grades, all of which are utilized by various phases of Industry for protection of glassware, pottery, confectionaries, cosmetics, books, automotive parts and many major appliances, etc. Available in rolls, sheets, sleeves cut to size and continuous rolls of tubing.

*The Fox Paper Co.
Circle No. 227*

Prompt Container Service

Prompt and economical delivery of containers you order is an important part of the regular service of General Box Co. All types of containers are available from the company's 10 strategically located plants.

*General Box Co.
Circle No. 228*

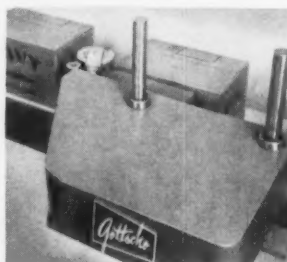


Heavy-Duty Stretcher

Model 48 flat steel strapping stretcher is said to have many new innovations which offer longer life, ease of application and reduced operational fatigue. Outstanding features are: 4-faced gripper; tension release feature; flame-

hardened surfaces; extension handle for greater tension. A companion sealer is also available.

*Gerrard Steel Strapping Div.,
U. S. Steel Corp.
Circle No. 229*



Solenoid-Activated Conveyor-Line Marker

A solenoid-activated, dual action conveyor-line attachment that simultaneously marks both the rear and one side panel of shipping cases. Designated the "201 Rolacoder", it can be attached to a conveyor, case-sealer or other handling machine.

*Adolph Gottscho, Inc.
Circle No. 230*

Contract Packaging Service

Complete packaging and packing service; export packing; military packaging and packing; plant removals; industrial packing design.

*Jerome F. Gould Corp.
Circle No. 231*

Re-Chargeable Flashlight

Gould Multi-Lite Flashlight can be recharged over 250 times using the same nickel-cadmium battery. Hermetically sealed in a rugged case, the Multi-Lite will reduce flashlight costs in truck maintenance and battery-room.

*Gould-National Batteries, Inc.
Circle No. 232*

"Bag of 1000 Uses"

Cushioned-Insulated bags for simple, low cost protective shipping, mailing, carry-home and warehousing uses. Named the "Jet-Pak", it is referred to as "the bag of a thousand uses."

*Greenwood Packaging Supply Co.
Circle No. 233*

Crepe Paper Masking Tape

Blue Star Special, a masking tape used by industry, not only for spray painting and similar situations requiring a masked-off surface, but also for

bundling, holding, sealing and other packaging jobs.

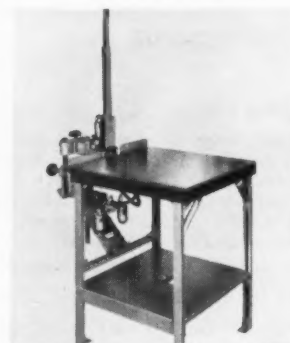
*Hampton Mfg. Co., Industrial Tape Div.
Circle No. 234*



Quarter-Inch Stencil Cutter

The "Ideal Quarter" a stencil cutting machine with 1/4-inch characters, has an automatic carriage which assures parallel lines and positive character and word spacing. Makes it possible to cut more than 200 characters in a 4" x 6" area.

*Ideal Stencil Machine Co.
Circle No. 235*



End Stapler

An air-operated table-model stapling machine which utilizes a new all air-operated stapling head. It is especially recommended for end-closing of overlap and telescopic cartons.

*International Staple and Machine Co.
Circle No. 236*



Automatic Carton Unloader

The Island "Styl-O-Vac" Carton Unloader removes (automatically) glass and metal containers from cartons (single tier only). It unloads all shapes and sizes of containers from five to 12 cases per minute.

*Island Equipment Corp.
Circle No. 237*

Versatile Impact Recorder

Model HS Impact-O-Graph is claimed to be the most versatile impact recorder in the field of instrumentation. It is currently being used on freight cars, trucks and trailers, lift trucks and cranes, for container and shock mount testing, evaluation of cushioning materials and as a quality control medium.

The Impact-O-Graph Corp.
Circle No. 238

Glamour in Packaging

Jiffy padded shipping bags are available with kraft outer liners of white, green, blue, maroon and gray in addition to the standard golden kraft. Two-color imprints are now easily available on the bags.

Jiffy Mfg. Co.
Circle No. 239

Interior Packaging Material

Keyes molded pulp shapes provide efficient, low cost interior packaging for almost any odd-shaped, fragile product. Typical examples are, electrical parts, apples, glass tubes, tomatoes and eggs.

Keyes Fibre Co.
Circle No. 240

Protects Against Scratches

Positive protection against scratches and pressure-marks is afforded by Kimpak Interior Packaging. Kimpak is said to shield products from rough handling by preventing movement within the package and by keeping dirt out.

Kimberly-Clark Corp.
Circle No. 241

Battery Purchase Plan

You can get details of the K-W "Exchange-Purchase Plan" which guarantees a fixed month-to-month, year-to-year lifetime cost and enables users to pro-rate exactly what future costs will be.

K. W. Battery Co.
Circle No. 242



Gravity-Flow Storage Racks

Versarack, a storage rack with free-rolling ball-bearing wheels to support packages in rows for storing in an easily accessible first-in-first-out sequence.

M-H Standard Co.
Circle No. 243



EASIEST, MOST EFFICIENT METHOD EVER DEvised FOR ADDRESSING SHIPMENTS

Imagine—no labels or tags to prepare and apply, no bulky stencil boards to cut, no expensive equipment to buy. It's so simple: A "label-frame" is preprinted on the cartons by the carton manufacturer. The ship-to address is imprinted on the cartons within the frames with

a small Weber handprinter and an inexpensive, paper stencil. Stencil is cut on a typewriter—separately or as by-product of your shipping paperwork. A clean, fast, systematic operation. Very inexpensive. (Handprinter costs just \$14.50.) Get all the details. Clip the coupon.

Weber

Weber Marking Systems
Division of Weber Addressing Machine Co.
Mount Prospect, Illinois

MAIL THIS COUPON



for complete information on
the Weber Direct-To-Container
Addressing Systems

WEBER MARKING SYSTEMS
Division of Weber Addressing Machine Co.
Dept. 1-K
Mount Prospect, Illinois

COMPANY _____

INDIVIDUAL _____ POSITION _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Circle No. 195 on Reader Service Card for more information

Specification Packaging

Do Government packaging problems get you down? Here is a company which can help eliminate your worries by doing your packaging and shipping for you. It will pick up inspected products from your plant and package them in its own plant. Material inspection reports and shipping documents will be prepared and forwarded to you after shipment has been made.

M & M Packaging Corp.
Circle No. 244

Marking Machines

Almost any marking problem can be solved through use of equipment made by Markem Machine Co. High speed machines to fit into production lines utilizing the automation concept are available for every application.

Markem Machine Co.
Circle No. 245



Low-Cost Steel Skid

All-steel skid made in sizes from 24 inches wide and 30 inches long, up to 48 inches wide and 72 inches long. A four-way skid, it can be furnished in standard underclearances of 3½ inches, 6½ inches, 7½ inches, 9½ inches, 11½ inches and 12 inches. Longitudinal panels are made of 16 ga. high tensile strength steel and run the long way of the deck to provide inherent strength without use of other side members.

Market Forge Co.
Circle No. 246



Touch-Button Taping

Touch-button taping for repeat length high production tape sealing operations is provided by the Twin-Taper. A light touch on top or side of either of twin operating buttons selects either length.

Marsh Stencil Machine Co.
Circle No. 247

Fully Automatic Charging

Models 680 and 681 are fully automatic battery chargers. Charging rate, cut-off of the battery when it is fully charged, shutdown when the charge is completed, shutdown in case of power failure and re-start when power is resumed are all automatic.

Motor Generator Corp.
Circle No. 248

Simplified Truck Controls

A twist of the wrist moves your load when you are using a Moto-Truc. With the "Roller Grip" control, speeds are controlled by a simple twist. Extreme up or down position of the handle sets the truck's brake. A push button on either side of the roller grip controls up or down hydraulic lift.

The Moto-Truc Co.
Circle No. 249

Metal-Edge Hoppers

Production-line hoppers for use under circumstances where small parts must be readily available to assemblers in such fields as radio, television and electrical firms. Have celolustre treatment on both the interior and exterior surfaces, rendering hoppers resistant to grease, moisture and mild acid.

National Metal Edge Box Co.
Circle No. 250

For Hard-To-Pack Items

Wooden boxes and crates, reusable containers, standard styles of nailed wooden boxes all designed to help solve problems of packaging hard-to-pack items.

National Wooden Box Assoc.
Circle No. 251

Nail-Less Pallet

A combination wood and metal pallet in four-way design. Uses no nails or screws. Only three bolts hold it together, making for quick assembly and disassembly when deckboards might be in need of repair or replacement. Pallet is of wing construction and is so rugged that it can be lifted with bar slings in stevedoring operations.

National Wooden Pallet Mfrs. Assn.
Circle No. 252

Gravity Shelving

Quik-Pik is said to boost efficiency and tighten inventory control. It is a patented, completely adjustable rear-feed gravity shelf unit which applies streamlined production techniques to stock handling and order filling.

North American Equipment Corp.
Circle No. 253

Quick-Change Packaging Machine

The Packmaster Model 50 packages into 3 x 3-inch envelopes at a rate of 80 per minute. A great variety of other sizes are available. Two un-skilled operators can change fixed-size sealing rolls in approximately 30 minutes. One person can change size on adjustable sealing rolls in 10 minutes. The unit also includes a counter.

Packmasters.
Circle No. 254

Once-Through Packaging

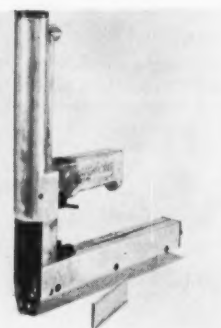
One Pak-Rapid machine eliminates a number of tasks which were once necessary for every packaging operation. It does the entire job, from the making of the package (envelope), through filling, marking, and sealing in a once-through operation.

Pak-Rapid, Inc.
Circle No. 255

Waterproof Tape

A polyethylene coating makes Polyken No. 320 a virtually 100% waterproof tape. The plastic is applied to the cloth backing of the tape to give an almost perfect moisture-proof barrier. Recommended for government specifications or any tough packaging problem.

*Polyken Products Dept.,
The Kendall Co.*
Circle No. 256



Heavy-Staple Driver

Power-line model NC-1 Air Stapler drives 18 gauge staples with 1/8-inch crown, leg length of ½-inch, 5/8-inch, ¾-inch, 7/8-inch, one inch and 1 1/8-inch, into the hardest of woods. The heavy staple eliminates crumbling and gives additional holding power.

Powers Wire Products Co., Inc.
Circle No. 257

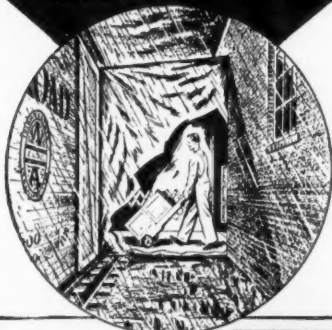
Formed Plastics in Packaging

Some of the advantages claimed for formed plastics as packaging materials

Circle No. 40 on Reader Service Card

CAPCO DOCK COVERS GIVE YEAR 'ROUND PROTECTION

CAPCO Dock Covers completely enclose the space between car and building doorways protecting loading and unloading during bad weather... preventing accidents... insuring against loss of heat or refrigeration. 51 different models in any size for every loading problem.



Write for literature and name of nearest distributor.

CAPCO

622-24 PROSPECT AVENUE • KANSAS CITY 24, MISSOURI



For
LOW COST STORAGE
shipping and handling



USE...
**COLLAPSIBLE
TIGHT-CORNER
PALLET BOXES**



ENGINEERED BY



- Economical
- Safe and Neat
- More Convenient
- Quickly Assembled
- Handles up to 5000 lbs.
- Collapsible When Not in Use
- Specially Made For Your Needs



30 Years Material Handling Experience

Write for complete details and prices to...
BIGELOW-GARVEY
lumber company
224 W. HURON STREET • CHICAGO 16, ILLINOIS

Circle No. 30 on Reader Service Card
NOVEMBER, 1955

are: low tooling costs; economical short runs; low material costs; ability to be formed into intricate shapes; ability to conform to the shape of the item; grease-proofness; can be had in any color or can be transparent; permits easy identification of items; is printable.

Preservation Packaging, Inc.

Circle No. 258

For Packaging Fragile Items

Tulatex is a cushioning material which resists moisture and fungus, is economical to use, light in weight and uniformly resilient. It is claimed to be an ideal cushioning material for fragile products.

Queen City Tulatex Corp.

Circle No. 259

Made-to-Order Containers

Almost every type of shipping container in commercial use today is made by Rathbone, Hair and Ridgway Box Co. The firm offers to study your shipping requirements and problems, then to design and build containers to your specific needs. The recommended container will be laboratory tested and, if desired, tested in actual shipment.

Rathbone, Hair and Ridgway Box Co.

Circle No. 260

Export Packaging Service

Export merchandise sent "care of Rentar" is said to get truly expert care. A corps of seasoned specialists in every phase of industrial packaging, alerted to the incoming material, goes to work on the shipment immediately, designing and constructing the best possible expert container for the product being shipped.

Rentar Packaging Co., Inc.

Circle No. 261

Fibre and Steel Drums

Rheemcote lithographed Poster Drums, Rheem fibre drums, Rheem equipment containers, five-gallon pails featuring new tin, lead and nickel linings.

Rheem Mfg. Co.

Circle No. 262



Air-Powered Strapping Machine

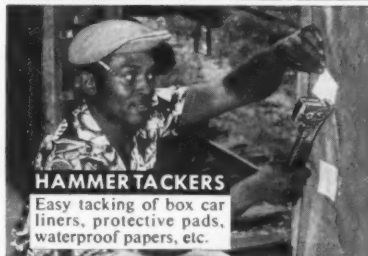
Signode Model AP tool is claimed to be the first air-powered strapping machine that automatically tensions strap-

TIME SAVERS



AIR PLIERS

Speeds stapling of many types of corrugated cartons and fillers.



HAMMERTACKERS

Easy tacking of box car liners, protective pads, waterproof papers, etc.



OC STAPLER

Staples tags to cartons. No anvil needed.



GUN TACKERS

For tagging wooden boxes, etc. Great all-purpose tacker.

These are a few of the jobs speeded and simplified by Duo-Fast equipment.

Mail coupon for details on fully guaranteed DUO-FAST STAPLER-TACKERS.

MAIL COUPON

FASTENER CORPORATION
860 Fletcher St., Chicago 14

Please send data on Duo-Fast Tackers for Shipping Departments.

Name _____

Company _____

Address _____

City _____ State _____

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Circle No. 99 on Reader Service Card for more information

100 stencils an hour!



WITH THE

IDEAL

Automatic Stencil Machine

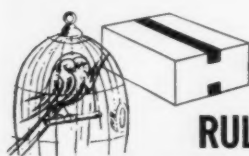
It shifts for itself!

Pays for Itself Many Times Over!

IDEAL
STENCIL MACHINE CO.
104 IOWA AVE., BELLEVILLE, ILL.

- Automatic Paper Carriage
- Automatic Line Spacer
- Space-Saving Operation
- Cushioned Hand Wheel
- Cushioned Short-Stroke Handle
- Proper Reading Angle Character Dial
- Safety Hood

WRITE for free demonstration!



IT ONLY TAKES 2 . . .

**RULE 41 AMENDED TO ALLOW
2-STRIP CENTER-SEAM SEALING**

CUT COSTS UP TO $\frac{2}{3}$ WITH

Filament Reinforced Sealing Tapes
And The FAMOUS

**DERBY
32-T**



The first important closure method change in 40 years! . . . now use 2 strips of tape for all shipments! The Derby 32-T especially designed to dispense all brands of tough filament reinforced tapes quickly, easily, accurately!

Cut Your Shipping Room Costs!

Write now, Dept. F for free booklet about 2 strips and the Derby 32-T



DERBY SEALERS, INC.
DERBY, CONNECTICUT

Circle No. 58 on Reader Service Card for more information

EXPOSITION REVIEW

Continued

ping and then seals and cuts it off in two easy motions. Provides uniform predetermined tension which may be adjusted to up to 1600 pounds. Has capacity of seventy-five seals.

Signode Steel Strapping Co.
Circle No. 263

Packaging Tape

Pressure sensitive tapes for holding, protecting, sealing masking, hinging, identifying, reinforcing and stenciling. Packaging tape in accord with Federal Specifications JAN-P-127.

Seemless Rubber Co.
Circle No. 264

Package Designers

Here is a source of help when you have a packaging problem which requires that you: make it smaller; make it lighter; keep it strong and re-usable. Skydyne designs and manufactures compact lightweight re-usable shipping containers.

Skydyne, Inc.
Circle No. 265

Light-Weight Stenciling Device

Stenciling, "as clean an operation as writing a letter", is possible with the Speedry Stenciler, Jr., it is claimed. Heads are constructed for fast, easy changing.

Speedry Products, Inc.
Circle No. 266

Automatic Packaging Machinery

Here are some of the machines available from Standard-Knapp: for cases—unloaders, openers, packers, gluers and sealers, printers, cleaners; for cans—unloaders, convergers, unscramblers, labelers, boosters, packers, palletizers and depalletizers; for bottles and jars—unloaders, convergers, unscramblers, rinsers, labelers and packers; carton and bag collectors, packers, etc.

Standard-Knapp, Div. of
Emhard Mfg. Co.
Circle No. 267

Electric Skid Tool

Developed originally for strapping skids of paper, the Electric Skid Magazine Strapping Tool is also used for strapping brick unit packs. Fastened together by tough steel, the unit package offers advantages in storage, handling and shipping.

The Stanley Works,
Steel Strapping Div.
Circle No. 268

Squeeze-Feed Stenciling

Sten-C-Labl uses a plastic ink bottle and plastic applicator base to provide low cost, speedy stenciling. Bottle is merely screwed into applicator base and becomes the handle. Applicators are supplied at low price which makes it advisable to dispose of them after ten or twelve months of severe usage.

Sten-C-Labl, Inc.

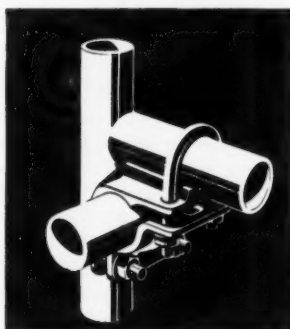
Circle No. 269

Air Helps Packaging

Here's a machine which uses air to help save money in bag filling operations. The Tele-Sonic Bag Opener transforms bag opening and filling into a swift, simple, economical operation. A pile of bags is slipped into the bag holder; controlled air pressure gently and fully opens the top bag ready for insertion of the product.

Tele-Sonic Pkg. Corp.

Circle No. 270



Universal Pipe Cleanup

A clamp which permits you to take advantage of any standard channel pipe (new or used) for construction of racks. The clamp is universal—it serves every connection on a rack made of a given size pipe. To install, just cut pipe to size, insert into clamp.

Tube-Strut Div., Tubular Structures Corp. of America.

Circle No. 271

Fiber Tubes and Boxes

Spirally and convolutely wound fiber tubes and containers, made in accordance with Government and commercial specifications. Available round, square and oblong in shape and with a large variety of metal closures.

United Can Co., Inc.

Circle No. 272

Cost-Cutting Cushioning

Texlite is a thorough bonded rubberized hair which gives good staying power under stress of transportation shocks.

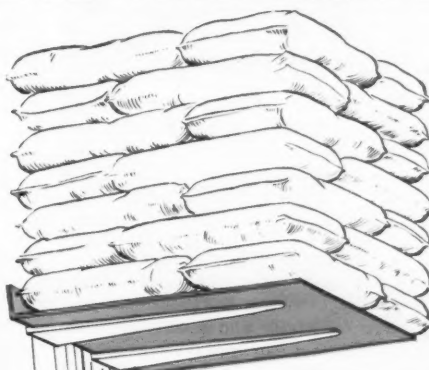
United Mineral & Chemical Corp.

Circle No. 273

(Continued on page 138)



SAVE with Fork Trucks



MEAD
board

and Chestnut POKE-PAK



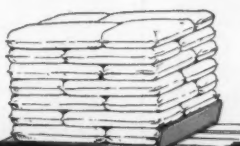
When you spot-glue bags on Chestnut Poke-Pak, you create a load that handles as one unit right through to final break-up. Only twenty-six units of 3000 pounds load a car, as against 780 100-lb. bags individually handled. What savings! Poke-Pak costs so little it's expendable after final handling. The specially-made fiberboard is hard, rigid, tough; supports any load; keeps center of gravity low. Superior to wood pallets with their annoying credits, return freight, charge-backs, splinters and nails that snag bags. Only end walls of cars need now be lined. Poke-Pak is economical, convenient for manufacturer, shipper, carrier, consignee, user.

FREE CONSULTANT SERVICE upon request; car-loading diagrams, bag patterns, samples of Poke-Pak. Fits any size bag unit, truck or car. Write today for complete information, including interesting brochure.

MEAD BOARD SALES, INC.
River Road, Lynchburg 2, Virginia

SALES OFFICES:

CINCINNATI 9, OHIO 3347 Madison Road
CHICAGO 30, ILLINOIS 6124 N. Milwaukee Ave.
NEWARK 2, NEW JERSEY 10 Commerce Court
DETROIT 35, MICHIGAN 18045 James Couzens Hwy.
BOSTON 10, MASSACHUSETTS 43 Leon Street



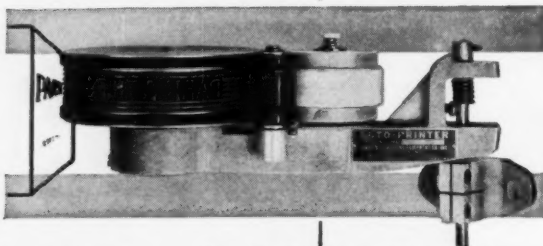
POKE-PAK COSTS SO LITTLE IT'S EXPENDABLE

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Circle 101 on Reader Service Card for more information

HERE'S HOW YOU CAN SIMPLIFY

marking
dating
coding



industrial's "whippet" marker

Easily installed on your conveyor line, the "Whippet" eliminates expensive hand stenciling—automatically imprints cartons, bags, rolls, cans, containers and packages as you need them—during production line runs. Saves inventory, pre-printing, storage costs. Non-oscillating friction operated head uses interchangeable self inking rubber type—works non-stop at production line speeds.

Proved practical and economical on almost any production line marking problem, "Whippets" are so simple and well designed that they serve faithfully and profitably with little or no attention. See how they can improve your operation. Write for details and catalog today! Dept. FL.

ime

INDUSTRIAL MARKING EQUIPMENT
454 BALTIC STREET, company, Inc.
BROOKLYN 17, N.Y. MAIn 4-2601

Block out old stenciling with Stencil-Kover

Permits boxes, crates, cartons, drums
to be re-stenciled and used again

• Tan-colored material in handy, efficient aerosol container completely covers over everything including old stenciling, crayon marks, printing, labels, etc. Dries quickly. Permits any container to be re-stenciled within 90 seconds and used again.

Always ready to use. No cans to open. No stirring. No brushes to clean. No waste. No drying out. No evaporation. A demonstration will convince you.

Ask us also about our quick drying waterproof Stencil Ink. Handy aerosol dispenser eliminates the mess and waste of fountain brushes and ball pots. 7 Colors.



REYNOLDS INK, Inc.

4508 EUCLID AVENUE, CLEVELAND 3, OHIO

Tell us more about your Stencil-Kover and Stencil Ink

☐ Send literature ☐ Ask your dealer to demonstrate

Name Title

Company

Address

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132

LP-GAS CONVERSIONS...

(Continued from page 74)

job, which takes about two minutes at most, involves removal of a mounting strap, closing a fuel control valve, uncoupling the fuel line, replacing the empty tank with a full one, and then hooking up the latter.

The company's storage plant for bulk LP-Gas is located about 500 ft. from the manufacturing area, in a parking lot (to comply with insurance requirements). Facilities include a 500-gallon tank, a 10 gpm. pump, and a 500-lb. capacity scale. Empty tanks are placed on the scale and hooked up to a fuel line from the storage tank. When enough propane has been pumped in to produce a pre-determined reading on the scale—65 pounds in the case of the eight-gallon tank, 45 for the five-gallon tank (including tare weight)—the tanks are full. An automatic device connected to the scale and the pump shuts off the flow of LP-Gas at this point. Cost of the installation was about \$500.

Rugged Service Requirements

Burgess-Norton, largest independent manufacturer of piston pins, also produces: clutch plates, bearing shells and a host of other automotive parts; copper-hydrogen brazings; stampings; precision hardened and ground parts and screw machine products. Floor area, which totals 375,000 square feet, is spread through two adjoining buildings on a triangular-shaped plot that requires some of the lift trucks to travel comparatively long distances.

One of the 2000 lb. units is assigned to a bank of 45 automatic screw machines at the south end of the plant. Others are stationed in the machine shop and punch press department. One 4000-lb. unit is located in the heat-treating department, and the other spends much of its time moving forgings and semi-finished machine parts in and out of a large storage area used by both plants.

Much of the work involves carrying in-process production from one machine to another, a distance of 25 ft. or less. Other times the trucks carry loads from one department to another. About the longest of these trips is one the punch press department's truck takes to a scrap salvaging machine at the south end of the plant, a distance of about 600 feet. Most of the inter-department trips are about 250 ft. long.

Within most of these departments, the trucks stack work-in-process in storage areas near the machines. Heights range from six to 10 ft. There are numerous miscellaneous chores. For example, the punch press department's truck moves strip stock out of storage to machines. Strip is either put on pallets or laid across the forks. This truck also handles dies weighing 50 to 100 pounds. The heat treating department's truck has speeded up cleaning of salt and acid bath tanks. Scale from the tanks is shoveled into large cast iron pots, which are then placed on the truck's forks and carried to a sump. The truck is equipped with a rotating attachment, enabling pots to be dumped automatically. Holes in the bottom of the pot, which accommodate the forks, hold the pot while it is being dumped.

Chips generated by the metalworking machines are

FLOW (PACKAGING & SHIPPING SECTION)

loaded into four-wheeled carts, each of which holds about 600 pounds of metal. They're equipped with an automatic dumping mechanism. The cart is carried on a lift truck's forks to the scrap salvaging equipment (crusher, ringer, and blower for loading chips into railroad cars), where the operator trips a lever on the cart and the filled container tips forward, dumping automatically.

Lift trucks also act as tractors, as a result of a simple modification. A hole is bored in one of the forks. Two-wheeled, high-sided wooden carts, fitted with tongue hitches having a vertical pin at the end, are towed by trucks. A typical example of the operation is the movement of gas tanks (for diesel engine starters) from the punch press department to the braze furnaces, a distance of about 250 ft.

Continuing Returns an Investment

Although Burgess-Norton is obtaining only a \$700 annual saving on an investment that totals about \$1,500 (\$1,000 for the truck conversions, \$500 for the bulk plant) the firm is confident that the money has been well-spent. LP-Gas is expected to continue cutting costs by at least \$700 a year long after the capital outlay has been returned. Also, the firm has eight other lift trucks, presently operating on gasoline, which are in the process of being switched. When this job is completed, it is felt the investment will pay for itself at a much faster rate.

Photos courtesy Clark Equipment Co. and Industrial Gastruck Engineering Co.



Drawn with a FLO-MASTER

Speed up Your Shipments with the Flo-master

When it comes to addressing boxes, crates, bags, cartons, etc., the Flo-master is an old smoothie. Interchangeable felt tips make lines varying in thickness from 1/8 in. to 1 in. Spring valve permits finger tip control of ink flow. Lightweight but sturdy aluminum construction. "Pocket Size" for general use—"King Size" for heavy-duty marking. Used with Flo-master Inks— instant-drying, water-proof, non-smudging.



Ask your supplier or write to Cushman & Denison Mfg. Co., Dept. F-23, 1953 W. 23rd St., N. Y., N. Y.

*A CADO Product

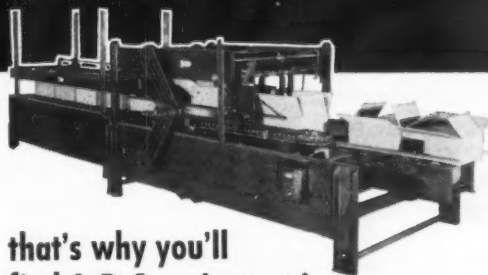
Cap of "King Size" may be screwed to bench to serve as stand.

Flo-master

FELT-TIP MARKER

Circle No. 52 on Reader Service Card for more information
NOVEMBER, 1955

You're SURE of Fast Efficient Sealing with A-B-C Short Case Sealers...



that's why you'll find A-B-C equipment in the leading plants all over America!

A-B-C Case Sealers are better engineered to give faster, more efficient sealing—proven in tests and on hundreds of production lines. They're better built to give longer years of service—save on investment and replacement. That's why you'll find A-B-C equipment in the leading plants in every industrial field.

AMERICA'S LEADING MANUFACTURER ENGAGED EXCLUSIVELY IN MAKING CASE HANDLING EQUIPMENT

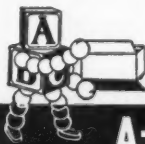
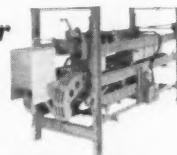
A-B-C specializes in case handling equipment. Let an A-B-C case handling expert analyze your case handling requirements.

A-B-C MAKES SEALERS IN A TYPE AND SIZE TO FIT EVERY SEALING JOB

A-B-C Sealers automatically glue, fold and seal either or both top and bottom flaps of shipping cases in one operation. Speeds up to 60 cases per minute. **A-B-C makes 100 models**—there is an A-B-C Case Sealer to meet your exact requirements.

NEW A-B-C Junior CASE SEALERS

A shorter, narrower, simpler and better performing semi-automatic case sealer. Can be made portable if desired.

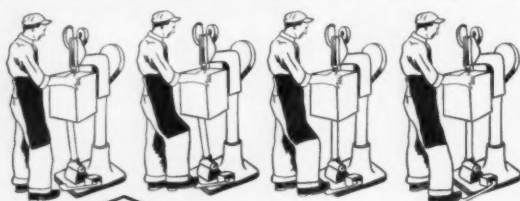


Whatever your packaging job, A-B-C has a production-proved machine for you—Case Sealers, Unloaders and Unscramblers, Side Sealers, Hand Gluers and Carton Fillers.

A-B-C PACKAGING MACHINE CORP.
QUINCY, ILLINOIS

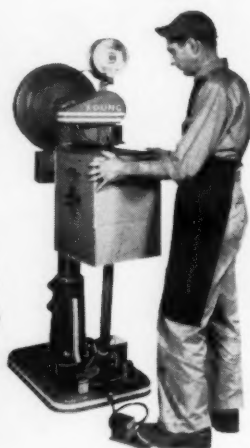
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Circle No. 60 on Reader Service Card for more information



Compare
**WIRE STITCHING
THIS FOUR STEP
FATIGUING WAY**

**WITH THE EASE OF
STITCHING WITH A
Young Conqueror
Wire Stitcher**
**YOUR FOOT NEVER
LEAVES THE FLOOR !**
**BECAUSE THE
ELECTRICALLY
ACTUATED POST
DOES THE WORK !**



The Stitcher With The Plus Features

DIAGRAPH-BRADLEY INDUSTRIES Inc.
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for Long Distance Shipping**
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LOSING PROFIT? . . .

(Continued from page 68)

shape, weight, quantity, and turnover—indicates, let's say, that the heaviest load to be handled is 3500 pounds, but that the big majority of loads weight not over 1800 pounds. Why purchase, for occasional use, a 4000-pound capacity truck that might require 12-foot aisles, when a 2000-pound truck, for most loads, can operate in 10-foot aisles? Perhaps it is possible to handle those few heavy articles in half pallet loads and not sacrifice space throughout the entire warehouse.

There will remain, of course, those points which must be taken as "considerations" and be used to influence your decisions. The intangibles that affect the scope, if not the nature, of the system are such things as rate of equipment obsolescence, predicted nature of long range future business trends, anticipated action by competition, amount of near future growth capacity for which to provide, and demand on available funds.

Gather Information First

The first step then is to gather all factual information pertaining to *fixed* conditions, as outlined in the accompanying list.

With the basic information at hand, the next step is to attempt to fit a handling system to it. Here, it is of utmost importance to consider every conceivable way of doing the job, and to visualize the method of operation all the way through, from receiving to shipping. It is in this phase that preconceived ideas and snap decisions can do the most harm by shutting out alternate possibilities. Check your basic assumptions to make certain that they are well founded. Each of the tangible points outlined in the gathering of information should be reviewed to see how well they fit the system, and each intangible consideration should be examined to reveal any major inconsistencies within the overall scheme. The few minor issues that remain unsolved at this time should not prevent you from going forward. If no other way seems open, simply put these issues aside, saying that they will be worked out in due time. It may well be that these minor considerations will be less effectively resolved than the major ones but, since they are the minor issues, they have less effect on the overall system.

If, at this point, there appear to be two or three plans that are about equally satisfactory, each plan should be followed through in greater detail, making preliminary layouts, man power estimates, and equipment investment estimates.

Along with the consideration of various systems that will do the existing job, thought should be given to the possibility of first improving, or even completely changing, the method of performing given tasks. The often seen question outline of "what, why, where, how, when, who" can serve to bring under the light of close scrutiny the old methods, to see if they will withstand the barrage of criticism that such questions will lay down. The first two questions, "What is being done?" and "Why is it being done?", when applied to a given operation, will help to eliminate the unnecessary jobs. The other questions may indicate rearrangements of

FLOW (PACKAGING & SHIPPING SECTION)

physical nature, reassignment of jobs, or different sequence of operations.

In connection with these methods improvements, the opinions and ideas of the operating personnel should be sought. In addition to providing the benefit of their working knowledge, the men on the job will feel that they have a part in the system and will be more eager to make it work. The best possible system still depends on the men to make it work, and their real cooperation will be a major benefit to the system.

The approach that says "Find a way to improve this operation" rather than asks "Can we improve this operation?" will be valuable in going through a review of the existing procedures. By taking a typical order and tracing its path, in minute detail, through your entire operation from receipt of order to final shipment, you can gain a good picture of time spent in each operation, number of people involved, distances traveled, and an indication of the phases of the operation that provide the best improvement possibilities.

A flow diagram will be very useful in pointing out the instances of back-tracking and extra travel. Another advantage of the flow diagram is its ability to point out the areas where travel is extremely heavy or light, to suggest possible aisle rearrangement.

Typical Example

Accompanying illustrations compare two layouts for one 300x600-foot building. With four departments representing four different but equally weighed operational areas, items, or groups of items, the comparison shows a substantial difference in total travel and concentration of travel.

Plan II requires about 85 percent more travel than does Plan I. This means not only extra cost but also more congestion, which creates other problems.

Heavy dots indicate where movements started and stopped. Here are some examples:

Plan I—receiving travel into center of Dept. D from closest receiving door; 1.65 inches, or 165 feet.

Plan II—receiving travel into center of Dept. D from closest receiving door; 3 inches, or 300 feet.

Plan II—order-picking travel to closest packing point from center of Dept. D; 2.2 inches, or 220 feet.

Total travel in an area indicates density, or degree of congestion. For example, consider total travel to which Dept. C, Plan II, is subjected

1. Dept. A, order-picking travel	300 feet.
2. Dept. C, order-picking travel	135 feet.
3. Dept. C, receiving travel	165 feet.
4. Dept. B, order-picking travel	150 feet.
5. Dept. D, order-picking travel	110 feet.
Total	860 feet.

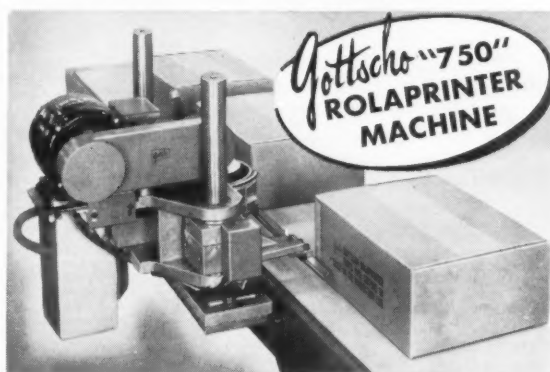
This same kind of analysis could be made to determine the location of various groups of merchandise in relationship to each other and to other areas of the warehouse. An analysis of a large group of typical orders will show the amount of travel from one department or section to another. This can be used to locate the most frequently associated sections close together and near the packing or shipping areas.

The method of operation, the handling system, and the layout should then be checked against one another

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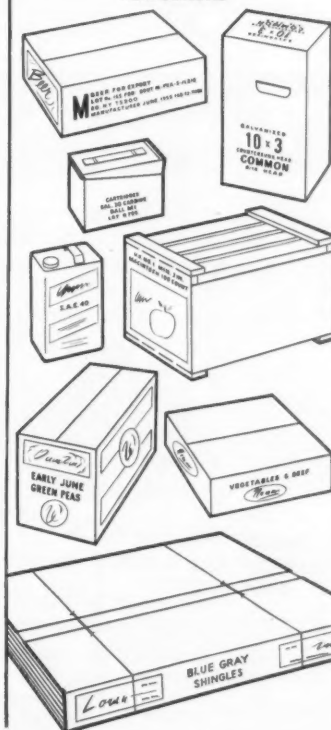
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More than a "marker", this machine imprints contents identification, other legends with printing-press precision.

- Attaches to conveyor, case-sealer, other handling machine.
- Simple electro-mechanism locates imprints accurately... regardless of whether container flow is regular or irregular.
- Unique vertical motor-driven flexographic printing system uses fast-drying liquid ink of any color... synchronizes with surface speed of moving containers to assure clean, sharp impressions equal to commercial printing results.
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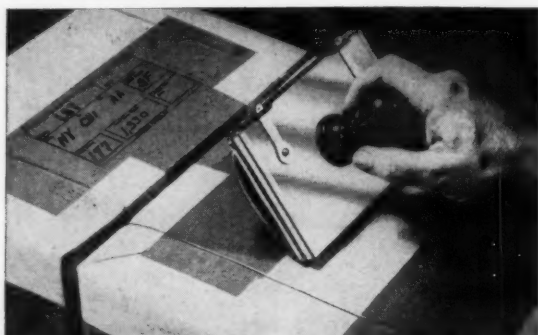
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LOSING PROFIT?

Continued

to determine if there are any features of any one phase that are incompatible with the other two.

The selection of proper storage mediums becomes an important step in connection with the layout. How much of each item of material is there to store? How much should be available for order picking? How many different items must be available? What balance between fast, medium, and slow moving items is in accordance with your orders and space? Are the various stock items arranged in relationship to each other as well as by quantity?

The last phase would be a detailed layout, a fully developed method of operation, and a complete listing of all equipment required by the system, along with the cost estimates of the equipment.

Make Cost Analysis

To prove the economic soundness of the proposed system, a cost analysis should be made and compared to a cost analysis of the present operation. Good cost information on your present operation probably will not be difficult to find, and what is available usually will not be in a form that will be useful for the comparison.

Perhaps it will be beneficial to review your method of showing handling costs. The first step in cost control is, of course, to know what the costs are and how they are distributed. It is quite common in manufacturing industries to find only very general or inclusive cost data covering the handling operations. However, the trend has been established to isolate the costs of indirect labor and to concentrate some of the efforts of work sampling, time study, and methods analysis—already the accepted approach in the production operations—to the field of indirect labor operations. Time standards and incentive systems are already in use in handling operations, and another five years should see this approach used quite commonly in warehousing and other non-productive operations.

In the warehouse, all direct labor costs are handling costs, but how are they distributed and where are the big items? Do you have an accurate figure of the cost of handling the average order through your system? What does it cost you to unload a boxcar or a semi-trailer? How frequent and how extensive are your overtime requirements? Do your delivery trucks stand idle at the dock, waiting for orders? Are you losing orders due to the inability to give faster service? Do you have an excessive error rate on your outgoing orders? Do you have a rough idea of what these errors are costing you?

Some of these items are very difficult to pin down, from a cost standpoint, but they are all costs that need to be minimized. They should, of course, also be considered when making the costs analysis to justify a proposed system of expenditure.

In making a cost analysis, one common method is to compare all of the costs inherent in the present system against those of the proposed system, to show either a total cost per unit or total cost per year.

Usually, the two items having the most significant

FLOW (PACKAGING & SHIPPING SECTION)

differences are in labor and equipment. There are other, more elusive items that should also appear in the analysis. In the case of a revised system in an existing building, value should be attached to the space savings or to the savings realized when more space need not be provided. Equipment operation costs and interest on investment are two other important items. Items having a real value, but which are extremely difficult to evaluate, are such things as damaged merchandise, errors, injuries, morale, and the ability to handle increased volume at the same efficiency.

The final figures from the cost analysis might be in any one (or several) of a number of forms. The most ideal way will be to show a figure that will provide a basis for cost justification for the project at hand, as a figure that will serve as a bench mark with which handling costs can be compared in the future. One of the most useable figures is a unit that regulates costs to quantity of material handled. A number of grocery warehouses use a figure of tons per man hour for comparison of efficiency. A large Navy supply depot uses as a good operating figure for handling costs 2 percent of the value of products handled.

If the cost analysis is on the basis of pay-out period—where you are comparing a proposed system to the existing system—a good proposal might pay for itself in six months to a year, if your existing system is badly out-dated; in one to three years in the more average situations; and in four or five years on some long-range, major expenditures or minor improvement proposals.

Summing Up

Perhaps the best way to sum up the approach given here is to call it "Operations Research in Warehousing". This application is not the formal mathematical approach usually associated with Operations Research, but it does involve the type of thinking that goes with it. It attacks a problem with a scientific approach, and rules out personal bias, opinion, and misconception. The more overall the extent or coverage of a particular solution, the more realistic and helpful the answer will be. Operations Research is a management tool that separates and evaluates the factual aspects of a problem, providing management with sound information on which to base their decisions.

Here is a summary of this approach:

1. Put yourself in a frame of mind that allows and wants the use of open, free-thinking and the experimental approach
2. Go into the problem wholeheartedly. Don't accept a lot assumptions to begin with, and don't expect a cheap solution to an expensive problem. Dig out the real facts and, after thorough analysis of the problems to be solved, develop the proposed solution in considerable detail, with a sound economic justification
3. Put the plan into action, nurse it until it gets on its feet, and expect some backfires and rough spots to occur along the way
4. Follow up the system periodically and keep checking on equipment, personnel, and methods. Don't let the system become static. It will need revision from time to time and, eventually, complete changeover to a better system.



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EXPOSITION REVIEW . . .

(Continued from page 131)

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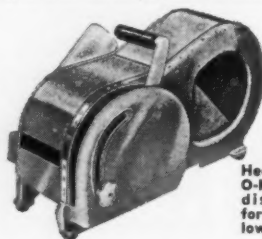
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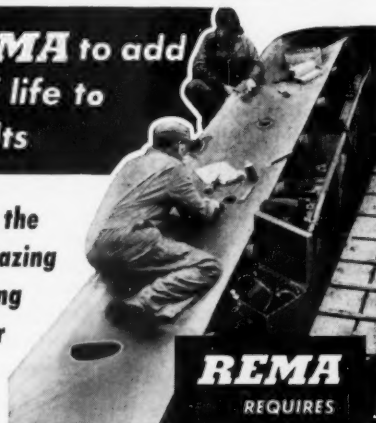
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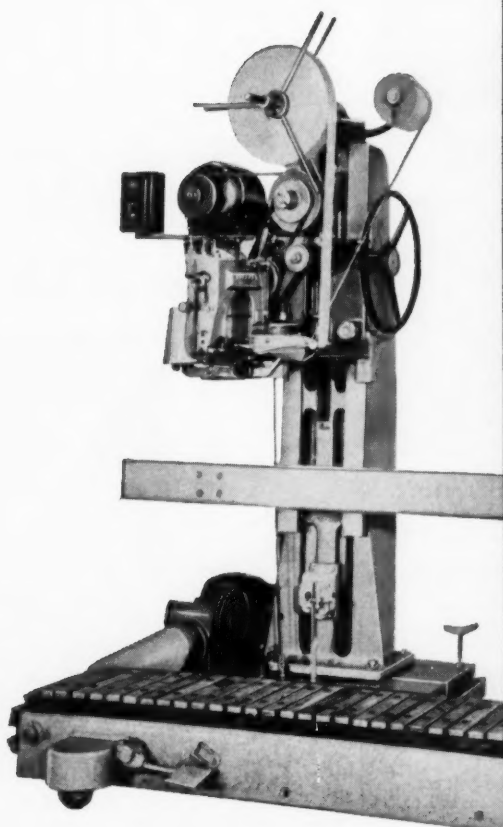
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Here's the perfect teammate for your present filling and weighing equipment—the most efficient way to get better protection and faster packaging at the lowest possible cost.

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Booklet ET gives you complete details and dimensional drawings, shows you how perfectly Model ET fits into your existing filling set-up. There's no obligation—just write to L-16,

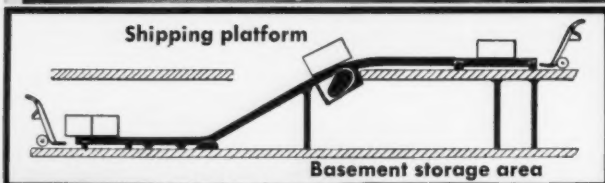
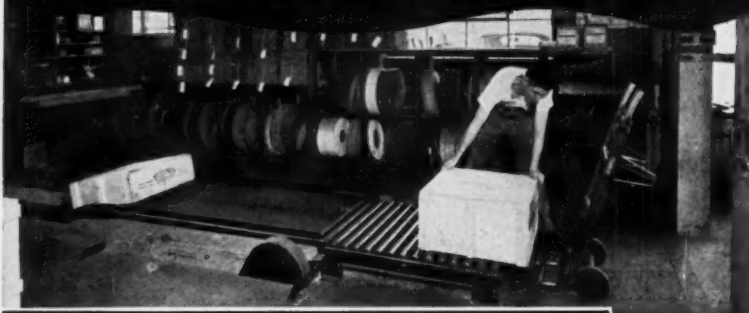
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Belt conveyors are only part of a wide range of Lamson conveyors . . . ranging from small, pre-engineered units to engineered systems to giant automatic systems. Lamson engineers, therefore, can recommend the proper system that best saves you time, money and space.

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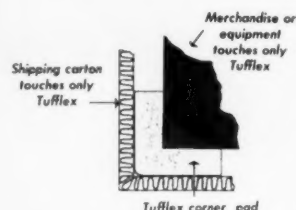
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Telescopic Conveyor

A truck-loading conveyor that uses only 10 feet of floor space and can be wheeled from truck to truck. It can be extended as long as 40 feet and can shorten as the truck is filled or emptied. A conveyor for box cars is only five feet long when not extended.

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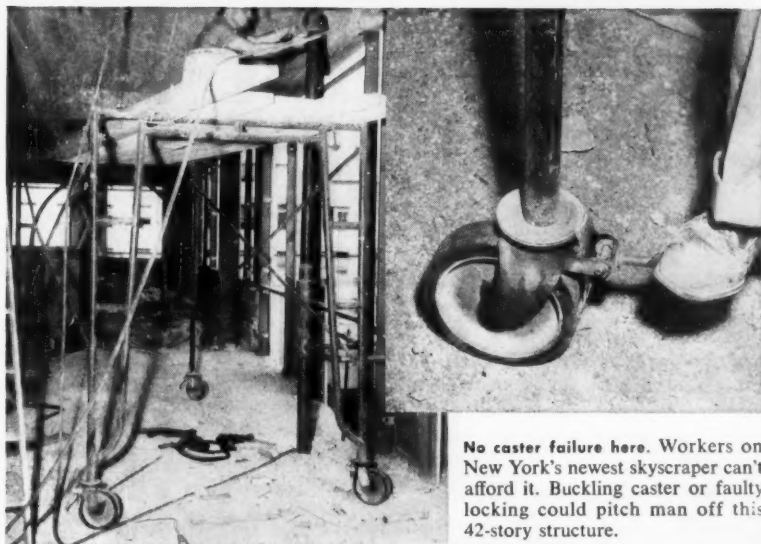
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40 stories above 42nd St. casters and locks can't fail!



No caster failure here. Workers on New York's newest skyscraper can't afford it. Buckling caster or faulty locking could pitch man off this 42-story structure.

Riding high with Bassick

Bassick casters lend a hand as the world's largest steel-sheathed (also the largest fully air conditioned) building climbs skyward at Lexington and 42nd in New York.

Handling mobile workmen's scaffolds on the unwallled edge high above the street calls for the safest, sturdiest casters money can buy. No wonder it's heavy-duty "S99" Bassicks you see above. Designed to stand the abuse of power-pulled trucks and assembly line dollies, they swivel easily and roll surely over rough flooring where a sudden lurch or buckling could spell disaster. Extra-heavy king pins provide unusual strength needed for loads up to 1500 lbs. each, while positive Bassick position locks keep wheels from rolling, hold the scaffolds securely in place.

New super-heavy, economical formed-steel "S99" casters



Double-ball-race design makes swivelling easy. Grease retainer cup and Alemite fittings aid lubrication. Plunger-type swivel lock available. Tough, heavy steel (1/4" thick) provides extra strength. Fully hardened cold-formed steel raceways, extra-heavy king pin insures long life.



Rigid casters, too, team up with swivel models to meet every materials-handling application. "S99" Bassicks take loads up to 1500 lbs. each.

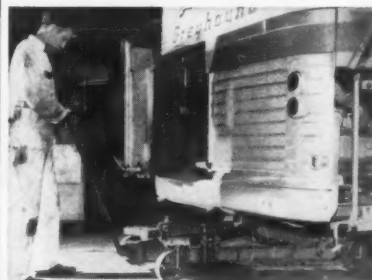
Bounceless caddy-carts for aircraft engines



Fairchild dollies for precision aircraft engines use four 10-inch dual wheel Floating Hub Bassick casters to prevent damaging shock.

Individually sprung wheels absorb both vertical and horizontal shocks. Vibration frequencies are interrupted and immediately damped out by Bassick's inherent snubbing action to guard against resonance and fretting corrosion.

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Here's a pony express — 1955 style. When Greyhound buses need fresh horsepower the special Bassick-equipped mobile mounting device you see above slides under the back end of the bus and rolls away the entire engine for repairs.

A fresh engine from stock is guided back into position the same way, connected in place — and the Greyhound is ready for another lap across country.

Job of handling the Greyhound's heavy expensive engines goes (naturally) to Bassick extra-heavy-duty "S99" casters.



Overweight wagon designed by Fairchild to move extremely heavy press dies, rolls easily on big, grooved wheel extra-heavy-duty Bassick casters.

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He has many standard casters in stock. He is in business to serve you . . . call him when you want casters and wheels.



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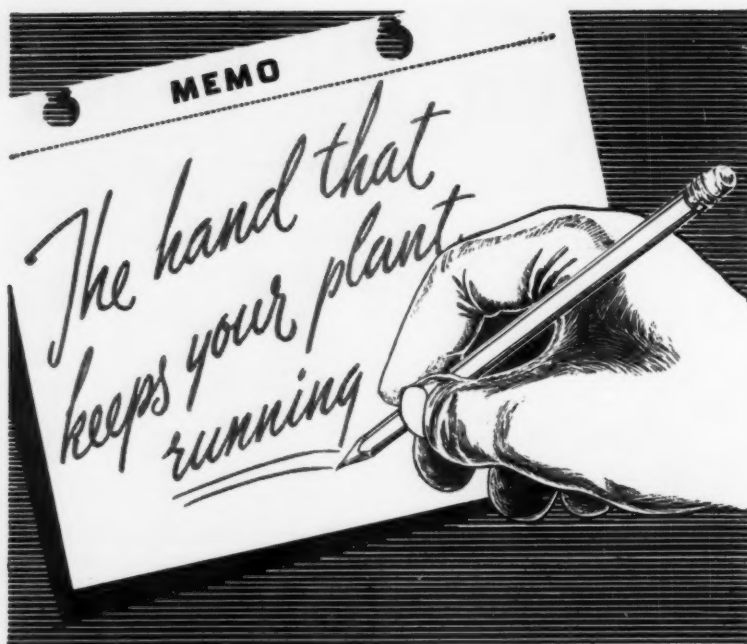
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CO-ORDINATION . . .

(Continued from page 112)

Now we come specifically to the packaging engineer and the material handling engineer. These are and should be important members of the organization. They constitute a valuable source of top executive and management staff material because of their wide knowledge of the operations of a business. If they undertake their responsibilities properly, they have a good understanding of sales and distribution, and they must understand and be familiar with production and its problems.

For these reasons, then, it is only logical that they must become the spark plug of co-ordination. To do this, they must be the leaders in securing co-operation of everyone concerned and in doing this provide a program with the power and push necessary to assure a favorable course of action and subsequent solution to a problem.

It is the acceptance of this policy which produces effectiveness not only in achievement of purpose but also in the cost reducing program.

It is estimated that in this year approximately 10½ billion dollars will be spent in this field, with approximately 9 billion dollars for the packaging side of the ledger and 1½ billion for the material handling side. These are tremendous figures and much of this money can be wasted if constructive thinking, controlled purchasing, and well planned usage are not properly coordinated.

About the Program

To give you a general picture of how we process problems in Kraft, and the procedures which we adhere to in order to assure as true a coordinated program as possible, I will follow one in brief:

Assume that the product is a new development created in our Glenview Research Laboratory and the executive director of sales has decided that the product should have great sales potentiality. At this point the department heads of package engineering, production, research, and sales are convened and the project is instituted.

For fast industrial battery service . . . *save this map!*



- 1 Atlanta, Ga., Northside Station—Box 153, Cherokee 3790
- 2 Baltimore, Md., 2406 N. Charles Street, Hopkins 7-1020
- 3 Baton Rouge, La., 4445 Sweetbriar, 3-6215
- 4 Birmingham, Ala., P. O. Box 5987—Homewood Station, 2-0064
- 5 Boston, Mass., 49 Mt. Auburn St., Watertown, Mass. Watertown 4-5200
- 6 Buffalo, N. Y., 443 Delaware Ave., Madison 5256
- 7 Charlotte, N.C., P. O. Box 9201, Edison 4-9739
- 8 Chicago, Ill., 3454 W. Lake St., Sacramento 2-6750
- 9 Cleveland, Ohio, 14812-20 Detroit Ave., Blvd. 2-3130
- 10 Dallas, Texas, 705 Praetorian Bldg., Prospect 2271
- 11 Denver, Colo., 1732 Blake St., Cherry 4-1102
- 12 Detroit, Mich., 15336 W. Warren Ave., Dearborn, Mich. Tiffany 8-8712
- 13 Indianapolis, Ind., 230 E. Ohio Street, Melrose 2-5962
- 14 Jackson, Miss., 429 S. West St.—Box 1085, 5-8305
- 15 Jacksonville, Fla., 3540 Remington St.—Box 6254 Evergreen 8-6290
- 16 Kansas City, Mo., 410 E. 27th Terrace, Victor 1742
- 17 Little Rock, Ark., 400 Shall St.—Rm. 114, Fr. 4-8314
- 18 Los Angeles, Calif., 1014 Venice Blvd., Richmond 9-5698

- 19 Memphis, Tenn., 2523 Broad Ave., P. O. Box 5131, Birmingham Station, 33-8981
- 20 Milwaukee, Wis., 5625 W. Wells St., Greenfield 6-0153
- 21 New Orleans, La., 820 Julia Street, Tulane 5207
- 22 New York City, 198 Pavonia Ave., Jersey City, N. J., Journal Sq. 2-4842, 4843
- 23 Omaha, Nebr., 3213 N. 16th St., Atlantic 5340
- 24 Philadelphia, Pa., 5th St. at Cheltenham Ave., Majestic 5-4410, 4411
- 25 Pittsburgh, Pa., 727 Penn. Ave., Churchill 1-9051
- 26 Portland, Ore., 427 N.E. Cook St., Tuxedo 1449
- 27 Richmond, Va., 4101 Bremer Blvd., Richmond 88-8432
- 28 Rock Island, Ill., 218 Safety Bldg., R. 1, 8-2181
- 29 San Diego, Calif., 722 Fern Glen, La Jolla, Calif., Glencourt 4-6757
- 30 San Francisco, Calif., 725 Second Street, Sutter 1-6591
- 31 Seattle, Wash., 2911 First Ave., South, Main 7488
- 32 Spokane, Wash., E. 125 Mission St., Fairfax 5379
- 33 St. Louis, Mo., 559 N. Skinker Blvd., Volunteer 3-6171
- 34 Syracuse, N. Y., 402 S. Townsend St., 75-2978
- 35 Tulsa, Okla., 214 East 12th St., 2-3197
- 36 Washington, D. C., Suite 344, Washington Bldg., National 8-1852

Wherever you may be, there is a C & D service representative nearby to serve your needs. If you have any questions concerning industrial batteries or maintenance, one of C & D's trained service representatives listed above will be glad to serve you.



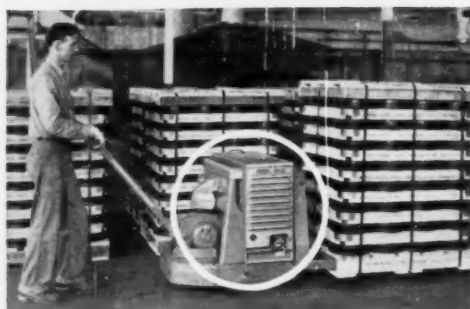
BATTERIES, INC.
of Conshohocken, Pa.

Industrial Batteries since 1906

SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

Circle No. 38 on Reader Service Card for more information

Get the Advantages of **READY-POWER** on Your Electric Industrial Trucks



Get Live Power for Walkie Trucks

Ready-Power's popular bantam model "W" is equipped with dependable 12-volt automotive-type starting and ignition. Variety of idling speeds and easy accessibility make it ideal for all walkie trucks as well as rider trucks up to 2,000 lbs.



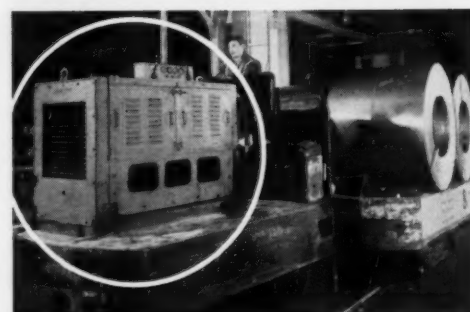
Work Your Fork, Platform, Tractor Trucks 'Round the Clock

Ready-Power gas-electric and LPG-electric units give materials handling trucks continuous, full power all the time. Slowdowns due to power fatigue are eliminated. The simple, all-electric control and live response make Ready-Power-equipped trucks rate high with truck operators.



Energize Lift Magnets on Your Electric Trucks

In the application shown at the left, the Ready-Power unit not only powers the truck, but also energizes the lift magnet for handling scrap metal. Ready-Power units are removable for shop adjustment while a spare keeps trucks working.



Get Diesel Electric for Lowest Ton-Mile Costs

Take a tip from the owners of industry's biggest trucks . . . power them with Ready-Power diesel-electric for maximum stamina, dependability, and lowest operating costs. Ready-Power offers power for every size and make of electric truck.

**Your Truck is No Better than its Power . . . Write for Information
on Ready-Power gas-electric, LPG-electric, and Diesel-electric Units**

READY-POWER

The READY-POWER Co., 3838 GRAND RIVER AVE., DETROIT 8, MICH.

Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

Circle No. 158 on Reader Service Card for more information

CO-ORDINATION

Continued

The first hint of control is set up at this initial meeting. Here is where the number assigned to the project is released, together with the appointment of a project manager, who is held responsible for the directing and coordinating of all activities relating to the project.

An example of a project number is P-1000.

Immediately after appointment, it is the project manager's responsibility to compose a request for the approved releasing of necessary funds. This is in reality our main control, for it carries Executive Committee approval for expenditure of funds requested.

This approved release carries an accounting department serial number that is strictly for their controlled ledger follow-up.

Instituting the Project

Under the project manager's direction, the project is instituted in our mechanical engineering section. Here work is assigned to designers and draftsmen, for in order to manufacture a product, we must definitely have, in many instances, new production equipment. If equipment is not available in the open market, tools to create must be drawn, blueprinted, and forwarded to our Mechanical Shop Division for actual fabrication.

While the equipment is in fabrication, material handling engineers are making layouts of equipment in place, analyzing and developing methods for easy movement of ingredients, supplies, and products to, through, and out of production areas. These studies and proposals, together with estimated expenditures and approved requisitions to purchase, are all referenced to the project number and forwarded to the chief project manager for approval and release.

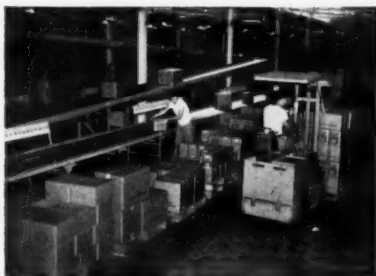
Also at the original meeting there is set up a packaging engineering control. This control is centered through a designated project engineer, together with an allotted serial number.

The package engineering serial number is constructed in code, so that anyone with a knowledge of

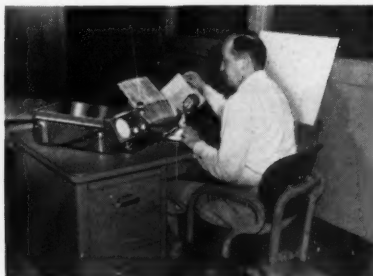
"CONTROL IN MOTION"

CONTROL IN MOTION, a new principle in Materials Handling, means that all material in motion throughout the plant is subject to organized 2-way radio control. You can know where material is, where it's going, what will take its place and when. It means the difference between live storage and dead storage—the difference between movement and stand-still . . . the difference between 60% and 90% plant efficiency.

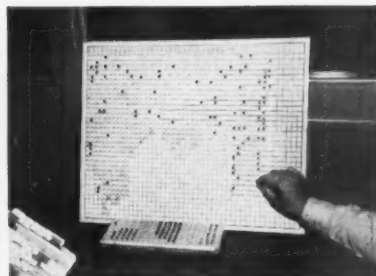
HERE'S HOW IT WORKS IN ACTION AT *Johnson & Johnson*



1. Cartons come to the Shipping Center on conveyor, and are loaded onto pallets manually. Fork lift truck, one of 8 equipped with Motorola 2-way radio, picks up pallet and radioes to Stock Locator (dispatcher in photo 2) for pallet destination. Instructions come back in a few seconds as driver is leaving area.



2. Stock Locator has constant radio contact with, and complete control over operations of all fork trucks. He checks the vertical file in front of him and the pinboard on his right that shows available "keys" (stock is placed in sections, called "keys"). He decides where pallet in photo 1 should go, according to FIFO system, and gives radio instructions to driver.



3. "Key" layout board is kept up to the minute with colored-head pins. It shows where available space is, plus other important data—(a) quantities in storage, (b) what kind of products, (c) where these products are located. The Stock Locator interprets this immediately and knows exactly what must be done next to preserve the continuity of the FIFO system.



4. Driver delivers pallet unit-load to designated key. Radio has saved precious minutes of his time. He received his radio instructions as he got his truck rolling, without leaving his driver's seat, without even pausing. The operation flows smoothly, without a single break in the continuity. After delivery, driver returns to conveyor palletizing area for his next load. If delivery has filled key, he tells Stock Locator by radio.



5. Removing stock to fill orders is done in either of two ways. If the order is for less than a full pallet, order pickers fill it by hand—loading a cart pulled along by an overhead drag line from stock placed in position along the drag line. In photo above, a full pallet has been ordered, and driver in area has received radio instructions to remove pallet from key and place it directly on drag line.



6. The drag line takes the carts out to the shipping dock area, where they are put in position by a fork lift truck for unloading onto trailers. Motorola 2-way radio has played a large part in making the "model" materials handling setup at J&J true "control in motion". Call in a Motorola Engineer. Let him show you how your materials handling efficiency can be increased greatly with radio. Write today!

MOTOROLA

INDUSTRIAL 2-WAY RADIO

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC.
A SUBSIDIARY OF MOTOROLA, INC.
4501 AUGUSTA BOULEVARD • CHICAGO 51, ILLINOIS
ROGERS MAJESTIC ELECTRONICS LTD. TORONTO, CANADA



Motorola consistently supplies more mobile and portable radio than all others combined.

Proof of acceptance, experience and quality.

The only COMPLETE radio communications service—specialized engineering . . . product . . . customer service . . . parts . . . installation . . . maintenance . . . finance . . . lease.

"The best costs you less—specify Motorola."

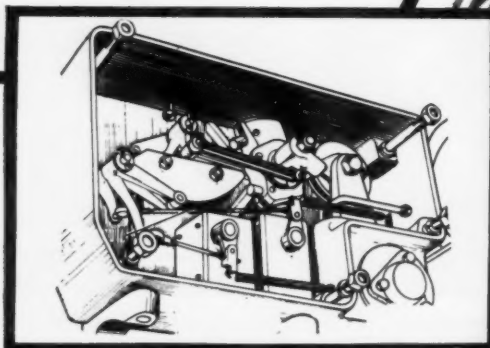
Circle No. 137 on Reader Service Card for more information

Another **EXCLUSIVE FEATURE**

SAFETY

WITH A COLES CRANE

SAFE-LOAD INDICATOR



COLES SAFE-LOAD INDICATOR

Prevents operator from lifting any loads in excess of rated load at any given point of radius. A warning light directs attention immediately to an overload. Current is cut-off automatically if operation is continued.



**The Name That Carries Weight
In Material Handling**

YES! Coles "Safe-load" indicator provides all around protection to operator, as well as to your investment in the equipment. Self-resetting safety limit switches fitted to hoist and boom hoist motion. Coles cranes embody many exclusive features which makes it the ultimate in safety—economy and versatility—designed expressly for industrial materials handling. The only crane with a one year warranty.

Write for Factual Data.

COLES CRANES, Inc.
Box 942-F Joliet, Illinois



Circle No. 46 on Reader Service Card for more information

CO-ORDINATION

Continued

the code can readily determine the area or product line affected. For example, each product line has a code number, such as No. 21 for sliced cheese.

We have additional numbers, such as No. 84 labels, No. 82 cartons, etc. Therefore, in setting up the proper package engineering serial number for this new product, your complete serial number may read as follows:

P-1000-110-21-84-3.

Deciphered, this serial number would read:

Engineering Project Number
1000

Package Engineering Job 110
—Sliced Cheese

Label—Revision #3.

Timing is the most valuable asset in every phase concerned with this new product. In order to achieve that timing, we must have coordination to assure delivery and installation of processing equipment ahead of packaging equipment; and packaging equipment ahead of conveyors, etc., to assure receipt of supplies and ingredients in advance of a pilot run; to assure that advertising is set up and printed for copy release and, finally, that Sales is geared to accept and promote the finished product.

In order that management and all concerned are kept up to date on the progress of the entire project, a monthly progress report is released by those project engineers in each section responsible for the program. These reports are combined by the chief project manager in a project report to management.

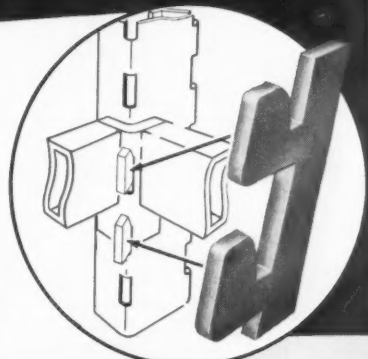
Management itself has many problems but none more critical than the recognition of the fact that true coordination is not possible without the proper men and women in the organization. Management must also recognize that this personnel is not readily available and must take steps to train people for this work because it is the staff itself that secures coordination and not the mechanical equipment installed for fabrication.

Now — Store goods with New Versatility - Flexibility - Economy!

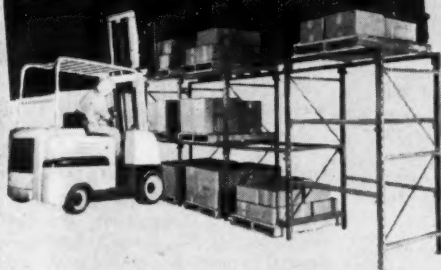
The Secret is STURDI - BILT'S FLOATING WEDGE LOCK

(Patent Pending)

This is the "miracle" device that eliminates bolts, nuts, tools, erection welding and any special labor. It joins the structure by an entirely new and different principle — increased loading tends to increase the rigidity of the entire structure. This in turn eliminates superfluous bracing, speeds of installation and lowers costs. The Floating Wedge Lock enables you to assemble, expand or rearrange your storage, quickly and easily as your needs require!



STURDI - BILT Adjustable Storage Racks



make ANY type rack for
PALLETS . SKIDS . DIES . BULK



Let one rack serve all your needs! Only 3 basic parts are needed to assemble the rack. You can handle pallets, skids, bulk or dies interchangeably—at any time! Vertical openings may be respaced in a matter of seconds. Widths of openings for one or two pallets. Heights to fit your needs—and they stack for added utility.

STURDI - BILT STEEL BULK-BINS



For Hand Storage of Goods... this System Offers Advantages Available NO OTHER WAY

Bulk Bins are quickly and easily set up or rearranged! Shelves may be respaced actually in a matter of seconds or the entire unit relocated. All parts are interchangeable. This versatility enables you to adapt the unit to all types and shapes of goods as changing needs dictate. 7 standard shelf sizes and post heights from 6 to 10 ft. provide for "tailor made" storage without custom cost!

A few territories available for qualified Materials Handling Dealers.

ANOTHER PRODUCT OF

Sturdi-Bilt

STEEL PRODUCTS, INC.

2501 Peterson Avenue Chicago 45, Ill.

Get the Complete Story
of this New, Exclusive
Storage System...
**WRITE FOR ILLUSTRATED
FOLDERS AT ONCE!**

Please send complete information on
... Adjustable Storage Racks ... Bulk Bins.

Name.....
Company.....
Position.....
Address.....
City..... State.....



in useful literature

These publications, written by experts, are available. Indicate your choice on the self-mailing Readers Service Card.

Maintenance Manual:

C & D Batteries, Inc. has issued a new 48 page manual on lead acid batteries for all types of motive power applications. The manual covers industrial cycle service in its entirety, including industrial truck, marine service, mine locomotives, railroad Diesel starting and carlighting and air conditioning service.

Circle 329 on Reader Service Card

New Straddle Carrier:

A new straddle carrier with load hooks that pivot inward to permit carrying without bolsters is depicted in literature published by Clark Equipment Company, Ross Carrier Division.

Circle 330 on Reader Service Card

Wire Products:

Woven wire slings, woven wire conveyor belts, industrial wire cloth and metal specialties are depicted in a four page brochure available from The Cambridge Wire Cloth Company.

Circle 331 on Reader Service Card

Stencil Ink:

Quick spraying, quick drying, waterproof stencil inks are outlined in a folder available from Reynolds Ink, Inc.

Circle 332 on Reader Service Card

Traveling Cranes:

Catalog 63 covering hand powered traveling cranes is offered by Reading Crane & Hoist Corporation.

Circle 333 on Reader Service Card

Feeders:

Stephens-Adamson Mfg. Co. has published a bulletin on the new Amsco manganese steel pan feeder. The feeders are said to be built with the strength and stamina to handle millions of tons of shovel-ore and stone, and the publication tells of a number of installations in various parts of the world.

Circle 334 on Reader Service Card

Control Systems:

Literature from Daytronic Corporation deals with measurement and control systems for laboratory and industry.

Circle 335 on Reader Service Card

Battery Catalog:

Catalog from The Electric Storage Battery Company, Exide Industrial Division, deals with Ironclad batteries for motive power service. Construction features and outstanding characteristics of the units are pointed out.

Circle 336 on Reader Service Card

Roller Conveyor:

Illustrations, types and sizes of the new A-F General Purpose roller conveyor are shown in a six page booklet available from The Alvey-Ferguson Company. A summary of the firm's complete engineered roller line is also given.

Circle 337 on Reader Service Card

Compact Derricks:

Circular MP55 published by Clyde Iron Works, Inc. contains information on the model W45 Whirler for hook work or clam shell. The unit is said to be low-cost and compact.

Circle 338 on Reader Service Card

Sling Chain Catalog:

A sling chain catalog that incorporates on single pages all the necessary information for ordering each type of sling is available from Campbell-Chain Company. A "care and use guide" is also contained in the publication.

Circle 339 on Reader Service Card

Checkweighing Scale:

A general purpose scale for highly accurate check weighing of filled bags, cases or drums is explained in a single sheet release prepared by The Exact Weight Scale Company.

Circle 340 on Reader Service Card

The New Hydrocrane:

Bulletin H-5-1 from Bucyrus-Erie Company describes the firm's new all-hydraulic, truck-mounted H-5 Hydrocrane. The bulletin is supplemented by a separate four page specification list and is contained in a handy compact literature folder.

Write 341 on Reader Service Card

Die Handling Trucks:

Hydraulic die handling trucks in capacities form 10,000- to 80,000 pounds are detailed in a four-page folder offered by The Elwell-Parker Electric Company. Operating photographs plus illustrations of major components are contained in the literature.

Write 342 on Reader Service Card

Industrial Locomotive:

Bulletin 2006 published by Baldwin-Lima-Hamilton Corporation describes the model SH-2225 diesel-hydraulic industrial locomotive. Included in the bulletin are tables of characteristics, descriptive information on component parts, tractive effort curve, etc.

Write 343 on Reader Service Card

Power Gates:

Daybrook Hydraulic Division of L. A. Young Spring & Wire Corporation offers literature on Speedlift power gates designed to fit all trucks and trailers.

Write 344 on Reader Service Card

Automation Belts:

A data sheet offered by B. F. Goodrich describes and illustrates a new line of automation conveyor belts.

Write 345 on Reader Service Card

Metal Containers:

Cans for nearly every use are described in literature prepared by George D. Ellis & Sons, Inc.

Write 346 on Reader Service Card

Reach Fork Truck:

The new 3000 pound capacity electric Reach Fork truck is pictured and described in a colorful folder published by The Raymond Corporation. Actual on-the-job photos show how the truck operates.

Write 347 on Reader Service Card

New Packaging Program:

Doerr Glass Company has available a four page bulletin which features Air-Pak, said to be a revolutionary new packaging program for laboratory glassware.

Write 348 on Reader Service Card

About Limit Switches:

General Electric Company has published an eight page catalog on lever and rotating cam type limit switches. The two-color booklet contains application information, product feature, ratings, dimensions and book prices.

Write 349 on Reader Service Card

Self-Leveling Ramp:

Faster handling, less breakage and greater safety at docks will be yours if you use the Leva-Dock self-leveling hydraulic ramp for loading and unloading operations, says literature from Rotary Lift Company.

Write 350 on Reader Service Card

Electric Hoists:

Bulletin 186 published by Shepard Niles Crane & Hoist Corporation covers electric hoists in a variety of capacities, lifts, speeds and types.

Write 351 on Reader Service Card

Plant Built Around Handling:

"Lift and Hoist", publication of Yale and Towne Manufacturing Co., tells how a beer packaging plant was built around material handling. Other interesting stories in the issue deal with plywood handling and packaged building supplies.

Write 352 on Reader Service Card

Pallet Roller:

The new pallet roller with modernized design-features is described and fully illustrated in a bulletin issued by Penco Engineering Company.

Write 353 on Reader Service Card

Centralized Charging Pays:

A recent issue of Gould Battery News tells how Westinghouse improved the performance of electric trucks by centralizing all charging, cleaning and repairing of storage batteries.

Write 354 on Reader Service Card



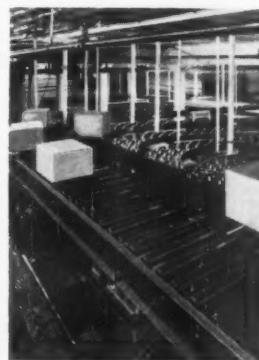
ON BUSCHMAN CONVEYORS

Across industry . . . in plants of all types . . . BUSCHMAN conveyors are setting new records for materials handling economy and efficiency. Engineered to individual production needs, these conveyor systems streamline plant operations . . . eliminate bottlenecks . . . reduce manual handling to absolute minimum.

BUSCHMAN offers a wide range of types and sizes to cover widely diversified materials handling applications. Gravity roller and wheel . . . live roller . . . powered belt . . . apron . . . overhead cable . . . or special conveyors can be supplied. In addition, BUSCHMAN engineers are prepared to survey your plant and to recommend the most practical, economical and efficient type of conveyor for each installation.

Whatever your materials handling requirements . . . specify BUSCHMAN for durable, versatile, profitable conveyor systems.

BUSCHMAN-designed switch and spur sections provide maximum versatility.



Typical combination system utilizing live rollers and gravity wheels.

C-1735-EWB



WRITE TODAY
FOR COMPLETE
DETAILS.

Representatives in Principal Cities

THE E. W. BUSCHMAN COMPANY

4450 CLIFTON AVENUE • CINCINNATI 32, OHIO

Circle No. 36 on Reader Service Card for more information

Aluminum Trucks:

Lightness, torsionally flexible bed construction and exclusive casters are pointed out as features of the Magcoa/Tobey aluminum truck in a folder published by Magnesium Company of America, Tobey Aluminum Division.

Write 355 on Reader Service Card

Sheet Grabs:

Faster, cheaper, safer handling of sheet steel is described in a bulletin offered by Mansaver Industries, Incorporated.

Write 356 on Reader Service Card

Metal Detector:

How to stop crusher breakdowns with the RCA metal detector is described in literature available from the Radio Corporation of America. The literature also tells how to select the right metal detector for your operation.

Write 357 on Reader Service Card

Warehouse Trucks:

Folder published by Myers Truck & Caster Company pictures and describes various warehouse trucks, trailers, dollies and skids.

Write 358 on Reader Service Card

Crane's Part in Automation:

Many questions concerning the crane's part in automation are answered in a booklet offered by Whiting Corporation. Examples are given of the application of various types of cranes in different industries, including many in-use photos.

Write 359 on Reader Service Card

Plastic Liners:

Jones & Laughlin Steel Corporation offers an informative booklet on the various applications of JaLiner, a built-in plastic liner for steel containers. Construction features are described, plus ways in which the polyethylene liner can solve difficult and routine packaging problems.

Write 360 on Reader Service Card

Wire Rope Movie:

A technicolor sound movie that depicts the many and varied uses of wire rope is available for showing free of charge from United States Steel Corporation. The film uses an entertaining human interest circumstance to explain a highly complex product.

Write 361 on Reader Service Card

Magnesium Hand Trucks:

Magline, Inc. tells in a colorful folder how to custom design a Magliner hand truck to meet exact job requirements. Specifications and technical data on the lightweight trucks are contained in the literature.

Write 362 on Reader Service Card

Automatic Drive Advantages:

Described in a new booklet offered by Towmotor Corporation are the advantages offered by automatic transmission for fork trucks. Called TowmoTorque Drive, and available on most Towmotors, it is said to give improved performance in material handling even under the most exacting conditions.

Write 363 on Reader Service Card

Polyethylene Packaging:

How polyethylene packaging has expanded markets for manufacturers, farmers, retailers and consumers is told in a folder prepared by Bakelite Company, Division of Union Carbide and Carbon Corporation.

Write 364 on Reader Service Card

Magnets:

Automatic and economical removal of tramp iron is described in bulletin PL-250 published by The Homer Manufacturing Co., Inc.

Write 365 on Reader Service Card

WHAT'S YOUR LINE?

No matter what you make... aardvark harnesses to zymometers... there's a Lewis Container built to handle it—quickly, safely, profitably.

Lewis Industrial Containers are strong, sturdy, and will take an unbelievable amount of abuse. The select elm slats are woven into a resilient webbing with heavy gauge wire, and locked in a hardwood frame that's dovetailed at the joints and reinforced with steel corner irons.

Lewis Containers are built in a wide variety of standard sizes and styles to suit all requirements. Large or small, light or heavy... if it fits in the box, Lewis will handle it.



Stacking Box



Skid Box



Box Truck



Masonite Truck



There is a Lewis representative near you... he'll be happy to provide helpful service.

G. B. LEWIS CO., 6111 Montgomery St., Watertown, Wis.

Circle No. 115 on Reader Service Card for more information

Aluminum Cabinets and Trucks:

A four page brochure available from Bucks County Enterprises Inc. illustrates and describes storage cabinets, racks, trucks and containers made of aircraft aluminum alloy. The equipment is said to entirely eliminate maintenance costs.

Write 366 on Reader Service Card

Marking Equipment:

The Rolacoder is said to be a low-cost, compact, automatic package marking and coding attachment, in literature published by Adolph Gottscho Inc. The unit attaches to conveyors, case sealers and other packaging or handling machines.

Write 367 on Reader Service Card

Battery Data:

A 20-page catalog published by the Edison Storage Battery Division of Thomas A. Edison, Incorporated contains electrical data, weights and dimensions of standard battery assemblies for driver-ride trucks. The literature is well illustrated with photos of trucks equipped with Edison nickel-iron-alkaline batteries.

Write 368 on Reader Service Card

The Story of Tracks:

The story of tracks is told in "How to be Sure About Track Parts", a new booklet published by Caterpillar Tractor Company. The booklet tells of the research and care behind the tracks on every Caterpillar-built tractor.

Write 369 on Reader Service Card

Conveyor Facts Book:

A conveyor facts book written in everyday language with many descriptive illustrations is available from Lamson Corporation. The catalog is slanted toward "when to use" the units rather than "what they are".

Write 370 on Reader Service Card

New Fork Truck:

The fall issue of the Lever, publication of Lewis-Shepard Products, Inc., is off the press and available to industry. Featured is the new electric Hydra-Fork truck, plus other hand and powered equipment.

Write 371 on Reader Service Card

About Crane Leasing:

The advantages of leasing cranes without capital investment are told in a four-page brochure prepared by Orton Crane & Shovel Company. Examples of payment charts as well as re-leasing payments are discussed in the literature.

Write 372 on Reader Service Card

Magnetic Drums:

Applications and features of permanent magnetic drums are detailed in bulletin MD-200 offered by The Homer Manufacturing Co., Inc. The drums are said to automatically and economically remove tramp iron or ferrous material from gravity or conveyor transported products.

Write 373 on Reader Service Card

Electronic Relay:

The new ASCO electronic relay and its advantages are described in a single sheet release available from Automatic Switch Company.

Write 374 on Reader Service Card

Industrial Rubber Products:

An eight page catalog digest offered by the Industrial Rubber Division of the Thermoid Company lists 90 industrial rubber products. Included are conveyor belts, flat power transmission belting, V-belts and rubber sheet packing.

Write 375 on Reader Service Card

Electric Walkie:

Sixteen page brochure from Clark Equipment Company gives complete details on the Powrworker electric walkie. The booklet is indexed for easy reference.

Write 376 on Reader Service Card

SAVE TIME & MONEY ON YOUR LOADING DOCK...

with the new **ROLLWAY** PORTABLE STEEL DOCK PLATE *One man easily moves it!*

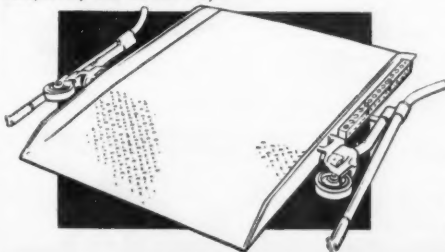
ROLL IT INTO PLACE . . .

One man easily handles the ROLLWAY like a two-wheeled warehouse truck—even the sizes that weigh more than 500 lbs.



MOVE HANDLES FORWARD AND DOWN . . .

As the handles are moved forward and down, the wheels automatically move off the floor letting the ROLLWAY down into position for use. No fingers need be under edges to be injured. On models with folding wheels the wheels also automatically fold to a flat position below the tops of the side rails. The handles can be telescoped completely out of the way.



READY FOR USE . . .

To remove the ROLLWAY after use, one man simply moves the handles up and back which automatically raises the plate and moves the wheels back into position for easy rolling.

Step up the efficiency of your materials handling operation right away. Write for complete information and prices on the various standard models of the NEW ROLLWAY PORTABLE STEEL DOCK PLATE!

WOODFORD MFG CO

1629 DELAWARE AVE.

DES MOINES, IOWA

Circle No. 201 on Reader Service Card for more information

The Trav-O-Lator:

How the Trav-O-Lator can be used to carry people safely and comfortably from one point to another is explained in a recent issue of the Otis Bulletin. The unit resembles an escalator, but has no steps, and is a product of Otis Elevator Company.

Write 377 on Reader Service Card

Automation:

Reprint offered by Jervis B. Webb Company tells what it takes to make automation pay.

Write 378 on Reader Service Card

Sling Handbook:

Union Wire Rope Corporation is offering free a 60 page handbook on slings. Illustrations, charts and diagrams describe numerous slings and fittings, and there's a list of hand signals for overhead traveling cranes designed for use in preventing accidents.

Write 379 on Reader Service Card

Cranes and Shovels:

Literature available from The Thew Shovel Company shows cranes and shovels at work in all types of industry.

Write 380 on Reader Service Card

Push-Button Packaging:

Sprayon Products, Inc. has published a brochure which describes the post-war revolution in packaging. The booklet traces the development of the self-spraying package and discusses the pros and cons of the push-button container.

Write 381 on Reader Service Card

Continuous Conveying:

For more profit in transportation, processing, storage and special assembly operations, a continuous overhead trolley conveyor is the answer, says literature from Rapistan-Keystone, Inc.

Write 382 on Reader Service Card

Tractor Shovel Details:

Engineering, design and production stories of the new HD-11G tractor shovel are pictorially presented in an eight page catalog available from Allis-Chalmers Manufacturing Company, Construction Machinery Division.

Write 383 on Reader Service Card

For Bulk Handling:

Literature from United States Rubber Company, Container Products Division, tells about Sealdbins designed for bulk handling, shipping and storage of flowable solid materials.

Write 384 on Reader Service Card

Unitizing News:

Examples of unitizing, skidding, palletizing, self-palletizing and bundling are contained in a 16 page folder published by Acme Steel Company. Also shown are the many benefits possible through unitizing.

Write 385 on Reader Service Card

Wire Rope Reference Book:

"Wire Rope is a Machine" is the name of a handy, loose-leaf reference booklet available from Jones & Laughlin Steel Corporation. Selection and operation data are contained in the clever 96 page booklet.

Write 386 on Reader Service Card

Plate Lifting Clamps:

Bulletin 100 published by Luckert Manufacturing Co. tells about vertical and horizontal plate lifting clamps said to be tough, tested and approved.

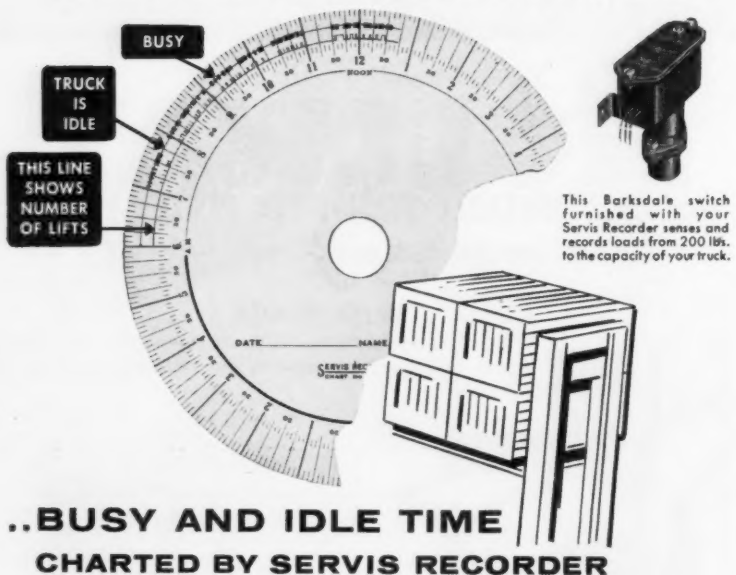
Write 387 on Reader Service Card

Aluminum Conveyors:

Easy-to-handle aluminum conveyors are illustrated and described in a two-color, four-page folder offered by Harry J. Ferguson Co.

Write 388 on Reader Service Card

NOW! LIFT RECORDS PLUS...



Now a new model Servis Recorder! Equipped with a Barksdale Hydraulic Pressure Switch, it records every productive load that exceeds a predetermined weight. Doesn't "weigh" a load, merely tells number of "good loads" a truck makes every day.

Originated in 1911, Servis Recorders have been faithfully charting idle and running time of industrial equipment. Now on the same permanent record you can get more complete cost information for each of your trucks. These same easily read charts are accurate for accounting needs, incentive pay systems and for maintenance scheduling.

Write today for complete facts.

THE SERVICE RECORDER COMPANY
1375 DEUCLID AVENUE • CLEVELAND 15, OHIO

The Servis Recorder
Tells Every Move Your Truck Makes

See us at Sixth National Materials Handling Exposition, Booth No. 1027.



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SELECTION . . .

(Continued from page 110)

palletization of bags on wooden pallets in groups of 20. Also, we install fork trucks to handle unit loads. This is fine for in-plant handling, but we still have the problem of transferring bags by hand labor from pallets to railroad car floor. To eliminate this problem, we install a new system using "take-it-or-leave-it" pallets. The pallets are designed so that fork trucks with special fourtined forks can pick up either the pallet and the load or the load only. With this system, the load is handled and stored, in the plant and in the warehouse, on the pallet. When bags are to be loaded onto the carrier, they are picked up on the bare forks and pushed off onto the carrier floor by means of a hydraulically operated pusher mounted on the fork truck.

The system, up to this point, is fine for us. It reduces our loading costs to an infinitesimal figure. It does nothing for our customer, however. He is faced with the necessity of manually unloading and re-palletizing for his own in-plant handling.

To remedy this situation, one-time use, or "expendable" pallets are devised and, by means of glue or strapping, bags and pallets are fastened together to form unit loads. Unfortunately, even though various ingenious innovations have steadily reduced the cost of preparing these unit loads, the cost of using them usually remains equal to, or greater than the customer's savings through elimination of the need to re-palletize.

Why was bulk shipment in covered hopper railroad cars or hopper trucks not introduced? The possibility was thoroughly investigated and it was found that the cost of installing equipment to unload and store the bulk material in the customer's plant was so large that the modest savings that could be realized on the comparatively small volume involved, were far too small to justify the investment required.

Another approach which has been receiving considerable attention lately, where smaller volumes are involved (under 10 million

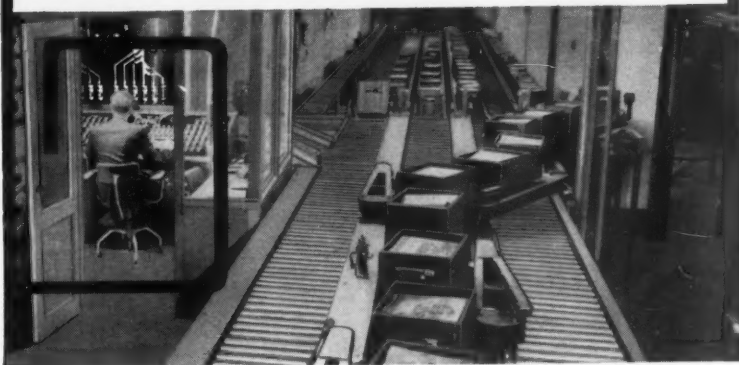
pounds per year), is the use of small portable bulk bins. While enjoying some success, high freight costs encountered when returning empty containers appreciable distances tended to cancel out the cost advantages obtained by elimination of container costs and reductions in handling labor. In attempting to minimize this freight penalty, an aluminum container which can be taken apart for return shipment has been designed. Another attempt has been made through design of a huge rubber container

that collapses for return shipment.

A new type unit container railroad car is designed so that portable bulk bins may be fastened to and travel as part of the car. They are entitled to free travel to and from the customer, the same as tank or hopper cars.

It would seem, that with the above we have now reached the ultimate. But have we? How did this technique work for the customer we have been discussing? It didn't. We found that our customer operated a fleet of his own trucks and

1 MAN ALONE OPERATES PLANTWIDE A-F ENGINEERED CONVEYING SYSTEM



Just 1 man, sitting at the control panel shown above, automatically controls the *starting* and *stopping* of *all* or *part* of this A-F Engineered Completely Co-ordinated Conveying System. He also routes and switches "trains" of cases on 5 A-F Conveyor lines to 2 groups of loading docks . . . Cases are automatically counted as they are being moved . . . Visible and audible signals prevent traffic jams . . . Before you order any type of conveyor, better write us. We'll be glad to submit an estimate.



YOU CAN SEE
THE SUPERIORITY OF
A-F CONVEYOR ENGINEERING

A-F Engineered Conveyors
Custom Engineered Conveying Systems
Pre-Engineered Conveyors—Wheel, Trolley
Metal Cleaning and Processing Machines

THE ALVEY-FERGUSON CO., 438 Disney Street, CINCINNATI 9, OHIO and Azusa, Cal.

Circle No. 10 on Reader Service Card for more information

SELECTION

Continued

made many deliveries close to our plant. It was a simple matter for him to pick up his raw material in bags at our plant and return to his plant at little, if any, cost. On the other hand, if he were to haul the bulk bins back and forth, or pay some one else to do it, the additional cost would be greater than the price reduction we could give him through elimination of the

container cost.

The basic lesson we can learn from this illustration is that the best material handling solution is the one which delivers the goods to the customer for the lowest cost. After all factors are taken into consideration, the most efficient way may not be the cheapest.

Detailed Information Needed

This broader sphere of activities greatly extends the need of the material handling specialist for detailed information. He must have

at his fingertips a special knowledge of a wide range of know-how. These data must be carefully organized so that they can be readily located and used. They must be continually kept up to date. This is a real problem.

Here is my personal solution.

I have set up my very own catalogue of available material handling equipment. I keep it exactly tailored to my needs and it is revised continually. It costs nothing but the time required to do this. Information in the catalogue comes from articles and ads in current periodicals devoted to material handling and, occasionally, from literature directly from equipment manufacturers. Old outdated information is destroyed as it is replaced.

First, in just keeping this collection up to date, your attention is repeatedly called to new equipment and design revisions. Additions to your catalogue can be used as a check list of new developments upon which you should attempt to gather more complete and more accurate information via demonstrations, plant visits, conventions, etc.

Second, the pictures will serve as excellent reminders of what you have already seen demonstrated or used. They can serve as a place to jot down notes on capacities, performance data, costs, etc. observed on field trips.

And third, the catalogue will provide you with a very valuable source for pictures and data you will need when discussing equipment in conferences. This material can be excellent for illustrating reports.

The first step in preparing my catalogue was to decide what types of equipment and what functions should be included. Since my interests are in the chemical field, the area to be covered was quite broad but by no means all-inclusive. The next step was to set up a basic outline for classifying and filing away information *as it was collected*. Clipping out and collecting without classification is usually a waste of time. A logical and orderly system is easily devised and will greatly expedite both speedy filing and prompt location of needed data. Here is the basic outline I have found well suited to my particular needs.



Model EX Hand Lift Pallet truck. Capacities 2500 to 6000 lbs.

Lower handling costs with **BARRETT LIFT TRUCKS**

ONE MAN DOES MORE THAN 3 OR 4 when handling skid or pallet loads with husky Barrett Lift Trucks. Around loading zones...through production...in and out of storage, regardless of shape, weight or size of units, Barrett has the right lift for the job...ready to give you faster, easier handling that pays for itself out of savings! Write for Bulletin 4861.



Barrett Steelleg Skids. Any size; any capacity. Platform, box, stake types. Iron-bound hardwood top boards. Manganese steel angles—forged steel legs. Write for Bulletin 4882.

BARRETT-CRAVENS COMPANY
614 Dundee Road, Northbrook, Illinois

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BARRETT

ONE MAN DOES MORE THAN 3 OR 4...WITH A BARRETT

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You will want Catalog 535 on the complete Barrett line. Your request will bring your copy promptly.

All equipment is assigned to one or the other of two basic categories. These are defined as follows:

1. **Bulk Handling Equipment:** equipment which handles commodities without a container (in the normal sense) and the pieces of which are not handled individually.
2. **Package (or piece) Handling Equipment:** equipment which handles commodities piece by piece or in containers of sufficient size to be handled individually.

It is obvious that we can subdivide "bulk handling equipment" into sub-categories based upon the physical form of the commodity handled.

Organize the Project

Now let us get down to "brass tacks" and see just how we might organize a project to select equipment to solve a material handling problem.

1. **Define the problem:** get all the facts. Find out exactly what is being done now, why it is being done that way and how essential the job is. Make sure that the job itself cannot be eliminated. Establish the present and probable future conditions as to volume, facilities available, man power required, cost, and operations with which it is integrated or related.
2. **Survey the past history:** try to learn all the methods that have been used in the past, the methods that were tried and discarded and the methods that were considered but rejected without trial. Try to learn the reason why these methods were discarded.
3. **List all the solutions to this problem that you can devise:** do not stop because you have found one or more solutions that appear satisfactory. Do not, at this time, try to compare or evaluate methods. What you are attempting to do is to determine all possibilities. Keep the supervisor in the act. Let him make suggestions—and criticize yours.
4. **Discard the obviously imprac-**

tical proposals and evaluate the remaining: estimate for each proposal:

- A. Investment required.
- B. The probable useful life of the equipment or project, whichever is the shortest.
- C. The probable operating and maintenance costs; and establish the savings which can be achieved over the present costs via the best method possible with the existing equipment.

- D. Calculate the return on investment for each proposal, taking into consideration the savings, the probable useful life, Federal income taxes which must be paid and depreciation deductions allowable.

Let the supervisor check your figures. He may catch an error that would embarrass you. He will appreciate your confidence in him.

5. **Choose the most satisfactory**



Model MC-4-24. 4000 lb. cap.

Save Space... Save Money with CRESCENT PALLETIER

Barrett Telescopic Palletier—the all-purpose hydraulic fork lift—handles a wide range of jobs. Loads and unloads trucks; box cars. Lifts capacity loads to higher levels for space-saving high stacking. Reduces man power to minimum. Speeds flow of materials through plant. Cuts handling costs to the bone.

SAFETY FEATURES: Complete operator visibility in all directions—less fatigue. Smooth-acting hydraulic brakes automatically applied when driver leaves seat. 10 models; electric power. Capacities 1000 to 12,000 lb. Collapsed heights—68" to 83". Total fork lift, 90" to 130". Free lift to 66". Also available in non-telescopic models. Special attachments for all models.

Barrett Palletier Catalog gives detailed description. Also Catalog 535 on the complete Barrett Line. Your request will bring copies.



CATALOG 535

PALLETIER CATALOG

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CRESCENT
BARRETT

ONE MAN DOES MORE THAN 3 OR 4...WITH A BARRETT

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SELECTION

Continued

solution by comparing and eliminating the less satisfactory: this procedure tends to minimize personal prejudice that otherwise might cause you to pick the solution using your favorite type of equipment.

6. Obtain a demonstration of the most likely equipment: this

step is often essential to evaluate the workability and true worth of the proposed solution. Sometimes a demonstration is impossible or impractical. If this is the case, a visit to another plant using this or similar equipment can usually be arranged and is the next best alternative.

7. Discuss how and when the new procedure should be introduced with the supervisor

and management: point out the advantages, establish the man-power dislocation that may be expected and try to get agreement on an installation schedule that will minimize dislocations.

8. Get the supervisor to request the funds for the investment: try to get him to write his own justification, merely using your reports to back up his claims.
9. Follow-up and aid in installation and initial operations: your help may be needed. New procedures nearly always have bugs in them. Don't try to duck responsibility.

YALE achieves industrial truck economy



with ALGAS LP-Gas carburetion equipment



1900-E Converter
UL APPROVED



670 Filter



1400 Series Carburetor

In the field of internal plant transportation equipment, Yale materials handling equipment is widely recognized for its efficiency and advanced engineering. Now, Yale's engineering brings you equipment designed for LP-Gas operation. In selecting the carburetion system for this equipment, Yale made sure that performance and economy of operation were paramount. ALGAS, pioneers in the field of LP-Gas carburetion equipment, is proud of this opportunity to serve Yale and bring better service to industry.

Write us for information on LP-Gas operation for your material handling equipment

Established 1932

AMERICAN LIQUID GAS CORPORATION
 1109 Santa Fe Avenue • Los Angeles 21, California

VIBRATION . . .

(Continued from page 73)

an elevator at an average rate of 30 tons per hour—with a peak load of 120 tons per hour. Water is added to the sand, and the plows shown help agitate and turn it. This reduces the sand temperature by 100 degrees.

In this particular picture, the sand is being discharged into an elevator boot over a permanent magnet that removes all ferrous particles.

Foundry applications have included the returning of shot to cabinets, shaking out small castings, conveying new and prepared sand, and hot shake-out sand.

Extra-wide widths of carrying surface can be obtained by overlapping adjacent conveyors. This arrangement has been used as the floor of a spray dryer.

It is possible to flatten bags with vibrating conveyors. Some materials can be evenly distributed as sacks are conveyed short distances uphill.

A vibrating conveyor has been used in extruding, forcing a sludge of material through a series of orifices to deposit it on a dryer belt.

Solidification of molten materials is another function of vibrating equipment. Slag and low-melting point salt can be cooled and fractured as they are conveyed.

Substantial savings have been achieved through vibrative equip-

Circle No. 13 on Reader Service Card for more information

ment in chemical and process industries. In one soap plant, processing time from the spray tower to final packaging formerly required several hours. Through the application of vibrating-spiral and horizontal conveyors, the time was reduced from 7 to 10 minutes.

The spiral equipment elevates and cools the product down from, approximately, 195 to 150 degrees. The most significant condition, however, is that the detergents are exothermic for approximately five minutes after they are discharged from the spray tower. Formerly the material was elevated into an "aging tank", where it was kept for a lengthy period. As a result of the heat liberated from all of the particles, the center of the pile tended to become moist and sticky, and undesirable agglomerations were formed. These had to be removed by screening and then recycled. Approximately seven percent was recycled. After the installation of the spiral conveyor, agglomeration was reduced to below three percent.

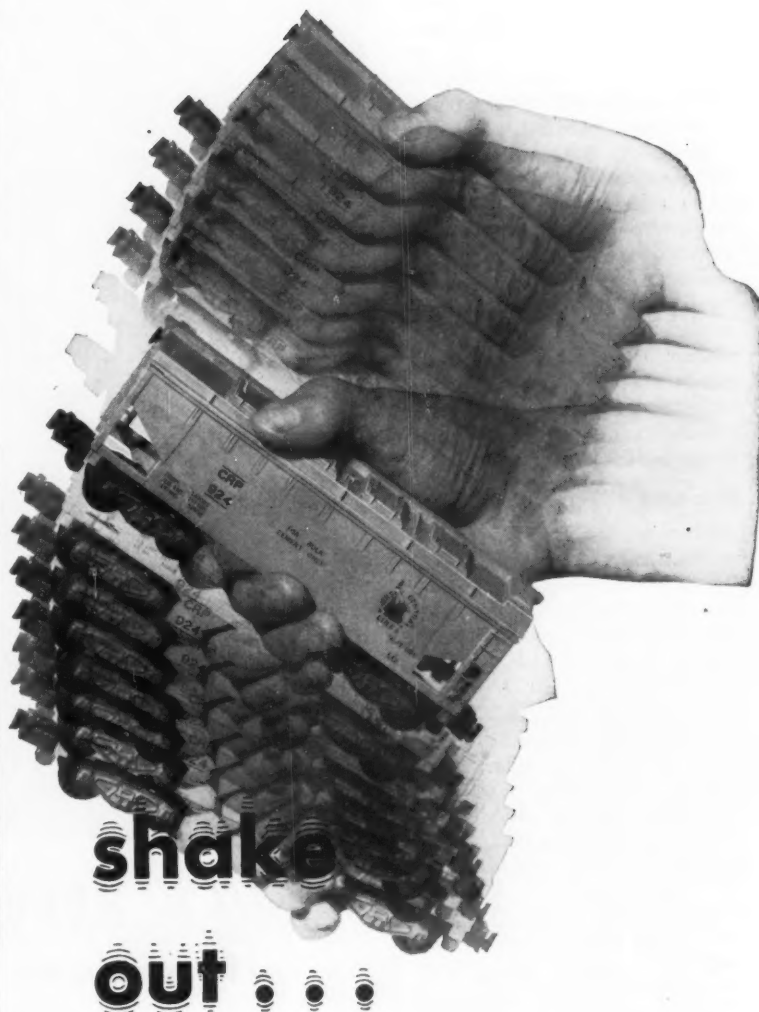
These examples are only representative. New uses are being found for vibrative handling almost every week.

Selection of Equipment

Factors which must influence the choice of an electrical or mechanical vibrator are:

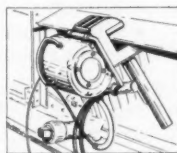
1. Distance material is to be moved.
2. Requirements for variable or remote control of flow rate.
3. Response of material to vibration.
4. Space required for installation of vibrative equipment.
5. Installation considerations—will ground supports be required; should the conveyor be of unit design, causing no vibration to the supporting structure?
6. Economics of types of vibrator—cost of installation, operation, maintenance, etc.

(It should be noted here, as manufacturers do, that neither type of vibrator competes with an elevator or apron conveyor when material must be rapidly raised to a substantial height. Also, it cannot be chosen over a belt conveyor solely on the basis of first cost, op-



**shake
out**

smooth and easy!



shake-out

60 cycle, 3 phase,
110 to 550 V.

Clamp force, 10 ton.

Vibro-Plus Shake-Out saves time and money unloading covered hopper cars. Shake-Out Vibrators are lightweight, need no special brackets, and feature one-man operation. The Shake-Out unit includes a jack-operated hydraulic clamp for rapid, sure attachment to hopper flanges. Shake-Out assures an even flow of materials into screw or air-slide. Shake-Out Vibrators are dust-proof, fool-proof, non-magnetic and tough. For information, write

VIBRO-PLUS PRODUCTS, INC.

Circle No. 189 on Reader Service Card for more information

Continued

erating cost, or when material must be transported great distances.)

Electrical Vibrator: An advantage of the electrical (or magnetic) vibratory equipment is the ease with which the rate of flow can be controlled. Since the speed of travel of any material in the carrier depends upon the length of stroke of the vibrator, it can be controlled by a rheostat. Rate can thus be altered instantly and easily while the unit is running; no mechanical adjustment is required. Power consumption is low.

Principal Parts

There are five principal parts in an electrical vibratory conveyor:

1. The main frame, or foundation, which is a heavy casting or steel support.
2. A series of vibrator bars, within the main frame, secured at each end to the frame but left free to flex, or vibrate, in the center.
3. A center clamp rigidly attached to the vibrators at their centers but free to oscillate without touching the main frame.
4. A handling deck, which rides on the vibrator bars.
5. The vibrating motor, with reciprocating armature mounted on the center clamp and stationary stator fixed to the main frame an air gap always existing between stator and armature.

This power unit operates from standard alternating or pulsating direct current. Either, when passed through a stationary stator, causes a series of interrupted pulls on the armature. These, of course, are directly transmitted to vibrator bars.

Opposed to this magnetic pull is the restoring or strained-tension force, built up by the bending of the vibrator bars. This opposing force causes the bars to snap back from the magnet each time an interruption occurs. This snapping-away force has sufficient momentum to spring the bars into a slight reverse curve. Therefore, the bars complete one full vibration with each electrical impulse.



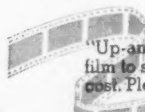
NEW MONORAIL CRANE

offers many advantages

For up and over handling this new American MonoRail Crane offers you the following advantages:

- up to 10 ton capacity
- meets low headroom conditions
- extra store room
- carrier service beyond craneway
- fingertip control from floor
- all movement power operated
- low maintenance cost

These are but a few reasons why you should call an experienced MonoRail engineer to help you with your handling problems.



"Up-and-Over" is the title of our 16-mm. sound film to solve many tough handling problems at low cost. Please allow three weeks to schedule showing.

Member of Materials Handling Institute • MonoRail Association



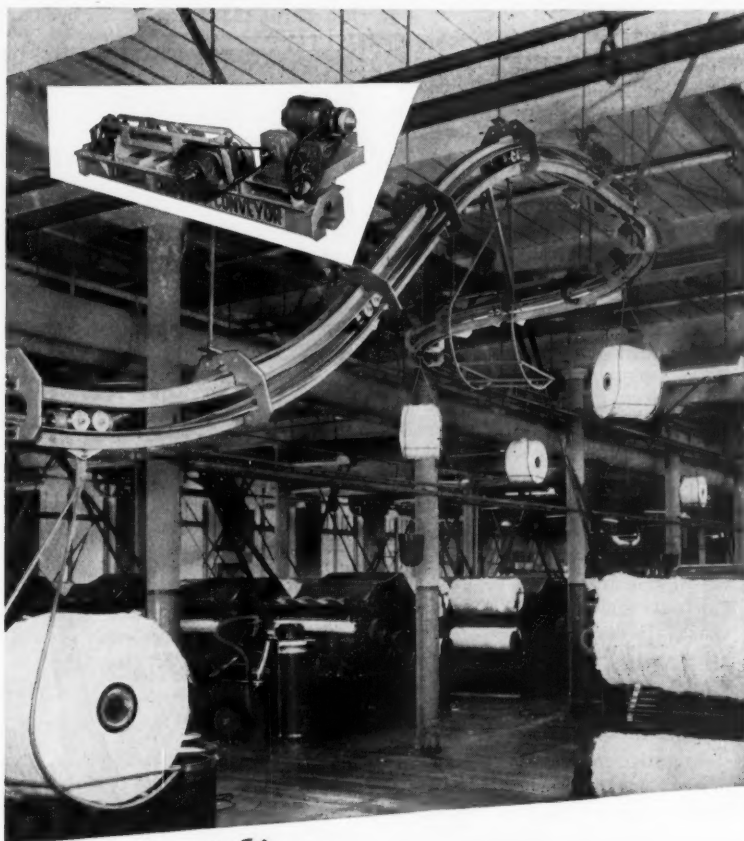
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OVERHEAD
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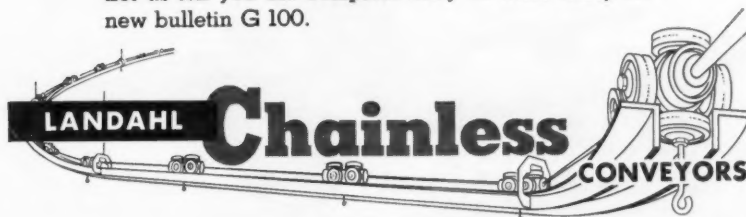


***LOOK* AT THESE SAVINGS AND BENEFITS WITH LANDAHL CHAINLESS CONVEYORS**

Landahl Chainless Conveyors offer important advantages and substantially lower cost.

- No Chain to Wear
- No Sprockets Needed
- No Cable to Sag
- Permits Short Radius Turns
- Low Cost Maintenance
- Low Initial Cost
- Ball and Socket Joints
- Caterpillar Drive Unit

Let us tell you the complete story or write today for new bulletin G 100.



The LANDAHL CONVEYOR CO., 13129 Athens Ave., Cleveland 7, Ohio
A SUBSIDIARY OF THE AMERICAN MONORAIL COMPANY

When incorporating such a setup into a conveyor, the average weight to be vibrated is calculated and balanced against the spring tension, or restoring force, of the vibrator bars. This balance can always be obtained by selecting a proper combination of vibrator bars, both as to thickness and number.

Several variations of the straight alternating current system have been adopted. The particular electrical design employed depends on the purpose of the unit. Most of the larger capacity units have direct current superimposed on the alternating current. Doing this increases both intensity and duration of magnetic waves without any loss of control. Also, vibration frequency is reduced to half of that provided by straight alternating current. At this lower frequency, a longer stroke becomes feasible. Superimposition of direct current is provided by a small motor-generator set, which is a part of the setup.

Handling Heavy Weights

There are various cases where great weight is to be vibrated. Then, direct current is applied in addition to alternating current, with each in a separate circuit. Like the pulsation current unit, this setup operates at lower frequency and provides a longer stroke than straight alternating current. Either 25 or 30-cycle current is used, and because it is often not available otherwise, an alternator is supplied, as part of the conveyor setup.

In this type of equipment, frequency of vibration is always constant, for it is inalterably fixed by current frequency. Therefore, only the length of stroke is to be regulated. Spring resistance of the vibrating bars employed is constant. Therefore, length of stroke can be changed simply by increasing or decreasing current input, thereby changing the amount of "pull" of the electromagnet.

Impulses of the magnet pull the trough, deck to tube, sharply downward, as well as backward. Direction of the recovery motion is therefore upward as well as forward. It might be said that the electromagnet pulls the deck "out from under" the material; the

BATTERY CHARGERS FOR INDUSTRIAL TRUCKS

for either

- lead-acid batteries
- nickel-iron-alkaline batteries

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PRECISION-CHARGE

Write Dept. 5700

THE
**LINCOLN ELECTRIC
COMPANY**

Cleveland 17, Ohio

*The World's Largest Manufacturer of
Arc Welding Equipment*

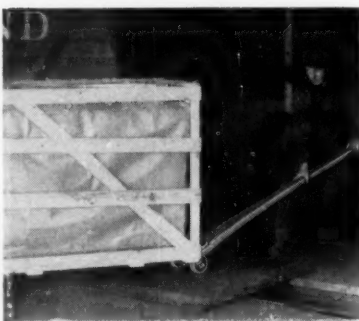
VIBRATION

Continued

spring-actuated return motion impels the material forward. As the material is free to move, it does not return with the backward motion of the conveyor. It falls by the slower force of gravity until it is intercepted by the next forward and upward stroke. Appearance of the movement, especially of fine materials, is often that of a continuously flowing stream because the rapid, short hops are imperceptible to the eye. This is an important characteristic of the vibrating conveyor. There is little or no sliding of material on the deck; hence, abrasive wear is usually negligible.

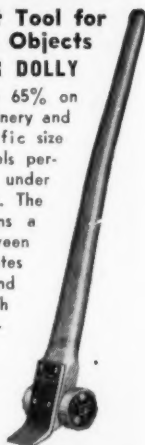
Electro-magnetic equipment—usually feeders or conveyor feeders—can be automatically controlled by timers, scales, automatic vibration controllers, or ampere-demand meters.

Vibrative conveyors may be supported on or suspended from low-frequency springs to minimize or eliminate transmission of vibra-



A Low-Cost Tool for Moving Heavy Objects THE MICRO LEVER DOLLY

Cuts moving time up to 65% on large cases, crates, machinery and bulky items. The scientific size and position of the wheels permit the lift blade to pry under objects flat to the floor. The wheel position also gains a high leverage ratio between power and load. Eliminates the danger of tip-ups and high falls. Four sizes, with a choice of metal or rubber wheels. See your local distributor or write:



MICRON, INC., Dept. F., Bettendorf, Ia.

"PALITON"

One Large Capacity—
4,600 lb.—at the
Same Low Price



Fork Lengths 36"-42"-48"
Widths 20½" and 27"
Specials to Order.



Threeway Control for
Raise, Lower and
NEUTRAL Giving **FREE
HANDLE** for Towing.



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*has Every
Modern Feature*



The Paliton Hand Pallet Truck
With Five Inch Hydraulic Lift.

**WRITE FOR
ILLUSTRATED
LITERATURE**

tion to the superstructure. They may be designed in almost any length. Widths of pan-type decks vary, generally, from five to 60 inches. Tubular conveyors are furnished in diameters from four to 26 inches. They may be activated by any required number and size of power units, depending upon the deck dimensions, the weight of the material handled, and the demands of the process.

To calculate the capacity of the equipment—based upon level operation and the handling of dry, granular material weighing 100 pounds per cubic foot—one can figure travel at 30 to 45 feet per minute for either pan or tubular type. Depths on the pan type are usually figured at six to nine inches; tubes are estimated to be half full. Ten degrees of declination in either type increases capacity substantially.

Mechanical Vibrators

Mechanical Vibrators: There are two principal classifications of mechanical, or oscillating, conveyors. They are intended to move materials (the same kind of materials that can be handled by electric vibrators) over great distances at reasonable cost. They are also designed as conveyor-feeders. The two classifications are:

- A. The "balanced" equipment, which minimizes vibration in the building.
- B. The "unbalanced", which transmits vibration to the structure.

Conveyor manufacturers, or other competent authorities, should be consulted if these, especially the unbalanced equipment, are to be installed over long, unsupported spans.

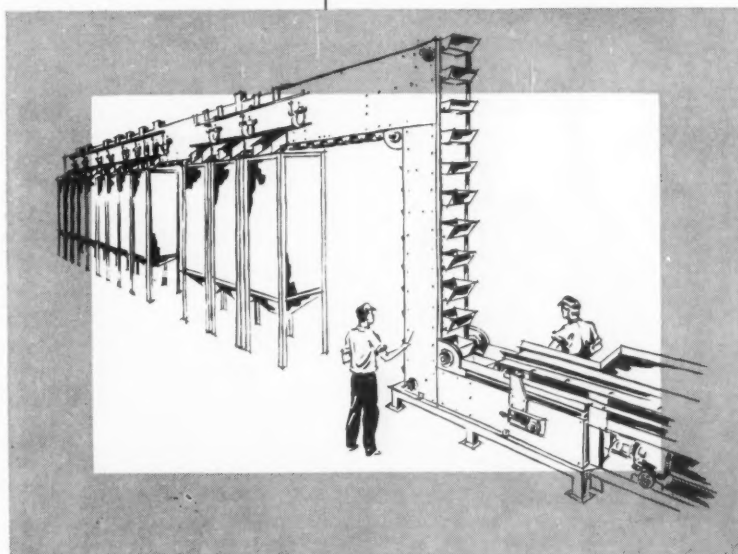
There are three main types of vibrators in these classifications, designated here by generally utilized capacities.

Low-capacity mechanical vibrators convey from a few pounds up to 30 tons per hour. They may be of the unbalanced design, requiring firm foundations. They may be installed off the floor or suspended from the ceiling.

Small, compact, lightweight, and dependable, this equipment is being used increasingly for transporting numerous materials over long distances. Many are pre-engi-

BETTER HANDLING IDEAS BY THE BUCKETFUL!

WHETHER THE PRODUCT IS STEEL BALLS OR NUTMEATS . . . DOOR LOCKS OR MARSHMALLOWS . . . PLASTIC PARTS OR CAKE MIXES . . . CONTINUOUS FLOW CAN BE ACHIEVED IN ROBO-LIFT BUCKET ELEVATING CONVEYOR SYSTEMS.



Material handling in the manufacture of door locks calls for complete flexibility and advanced control systems. Distribution of parts to as many as 38 storage bins is accomplished by one ROBO-LIFT with an unusually high degree of practical efficiency.

Counsel is equipped with a wealth of field experience analyzing continuous flow problems. Our engineering staff is available at all times to help in planning and completing your material handling project. They serve you best from the very outset of your planning.

Write to us now for further information.



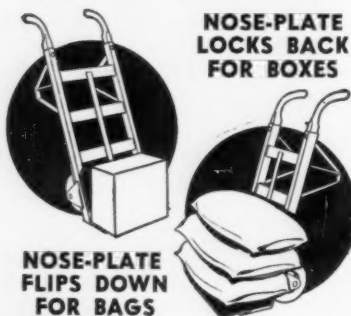
MACHINE COMPANY, INC.

8 HATHAWAY STREET, WALLINGTON, N.J.

Mid-West Office: 333 N. Michigan Ave., Chicago 1, Illinois.
Circle No. 50 on Reader Service Card for more information



DICO MODEL "B" COMBINATION BOX & BAG TRUCK



20" and 22" frame widths . . . easy rolling DICO "H-D" 10" x 2.50 roller bearing wheels with molded on rubber tires.



ASK FOR NEW
'56 TRUCK CATALOG

DES MOINES 5, IOWA

Circle No. 62 on Reader Service Card
162

VIBRATION

Continued

needed, stocked for quick delivery. Essentially, the conveyor consists of four parts:

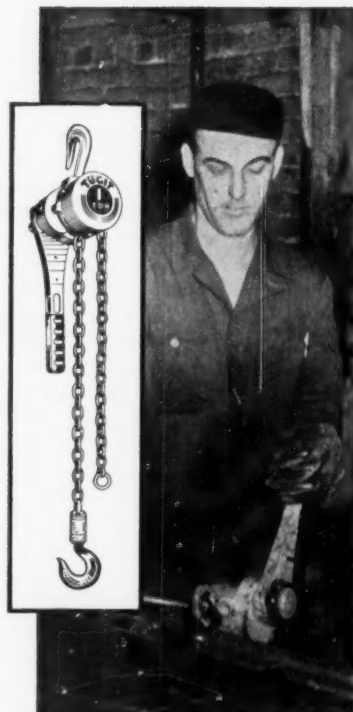
1. A deck or trough.
2. Vibrator bars or coil springs to provide direction of movement and restoring force.
3. A base, usually a channel, upon which the conveying element is supported by the vibrating bars or springs. This may or may not require bolting to a foundation.
4. A drive, usually a simple eccentric connected directly to the deck. Drives, which may be open or totally enclosed, are designed to shake a given weight or length of deck. When the length is great—usually over 30 feet—another drive may be added. With equipment operating at or near natural frequency, and in light duty, a unit of over 200 feet is reported to have been operated on one drive.

The horsepower requirement of these conveyors is small. Speeds of travel of material along the conveyor vary according to the characteristics of the material. Granular, free flowing materials will travel at speeds of from 20 to 60 feet per minute. Depth likewise is affected by characteristics of the material. Usually 3 inches is considered maximum. These vibrators must not be overloaded. Where peak loads are likely to be encountered, a wider conveyor should be installed.

Medium capacity mechanical vibrating conveyors may be classified as those designed to handle from 20 to 90 tons per hour. Usually, the stocked or pre-engineered equipment is of the unbalanced type, requiring a firm foundation. Where it must be installed above floors or in roof structures, counter-balanced units can be provided.

Four principal parts of the unbalanced conveyor are:

1. Deck or conveying trough.
2. Vibrator bars, torsion bars, coil springs, or combinations of these, providing direction of movement and restoring force.
3. A drive, usually a simple ec-



GIVES YOU A LIFT IN CUTTING COSTS

'Tugit' is a powerful, speedy tool that lifts and pulls smoothly at any angle. It is a small, light spur-gear hoist—fits any tool box. It's easy to use on close-quarter lifting jobs. A pull of only 40 lbs. lifts a 1-ton load. Accurate spotting is a cinch. Non-kicking handle! The brake acts fast, automatically. Both hooks are safety-type and the chain is super-tough.

For maintenance, for installing pipe and cable, for tightening or joining—whatever the job—save time, effort and money with a 'Tugit'. Made in 1 and 2 ton sizes. Get full details from your "Shaw-Box" Distributor or write for Bulletin 388.



'TUGIT'®
HOISTS

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Box" and "Load Lifter" Cranes, "Budgit" and "Load Lifter" Hoists and other lifting specialties. Makers of "Ashcroft" Gauges, "Hancock" Valves, "Consolidated" Safety and Relief Valves, "American" and "American-Microsen" Industrial Instruments, and Aircraft Products.

Circle No. 125 on Reader Service Card
FLOW

centric connected directly to the deck. They are available open or totally enclosed and designed to shake a given weight of deck. For great distances, other drives may be added.

A counter-balanced unit involves a slightly-higher installation cost. These conveyors may operate at or near their natural frequency, requiring low operating horsepower. Granular, free-flowing material will move at 20 to 30 feet per minute, and a four-inch depth is usually maximum. Again, if peak loads are expected, a wider deck should be installed. This equipment is normally expected to operate on the level, but units can be designed for an upgrade. Heat expansion decks may be provided for materials at temperatures over 250 degrees F. This equipment may be used for scalping, cooling and drying.

High capacity vibrative equipment may convey from 50 to 500 tons per hour. When tonnages of this magnitude are to be handled, special design and fabrication are usually required. Location and service requirements will determine whether the unit may be unbalanced or counter-balanced.

Completely counter-balanced and spring mounted mechanical vibrators, like the electric vibration conveyors, may be applied above floor levels or across silos.

Among ways in which counter-balancing may be accomplished are:

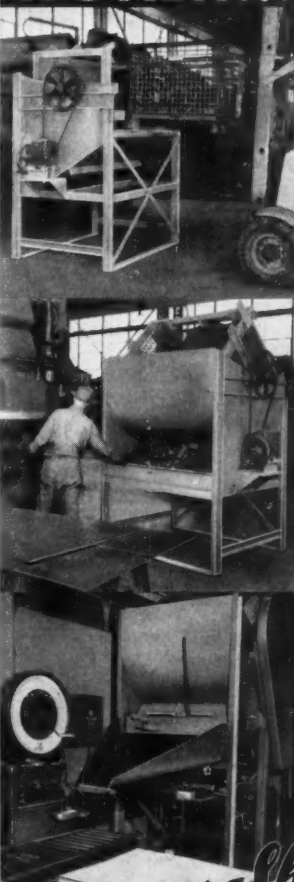
1. Use a counter-weight individually supported on its own cantilever bars.
2. Use a dynamic balancer to absorb shock.
3. Split the conveyor into two equal sections, with the drive located in the center and arranged so that, as eccentrics operate, the two sections oppose each other.
4. Use dual troughs, one mounted above the other, with the eccentric located between decks.

Photos and data courtesy: Carrier Conveyor Corp.; Hewitt-Robins Inc.; The Jeffrey Manufacturing Co.; Link-Belt Co.; Simplicity Engineering Co.; and Stephens-Adamson Mfg. Co.

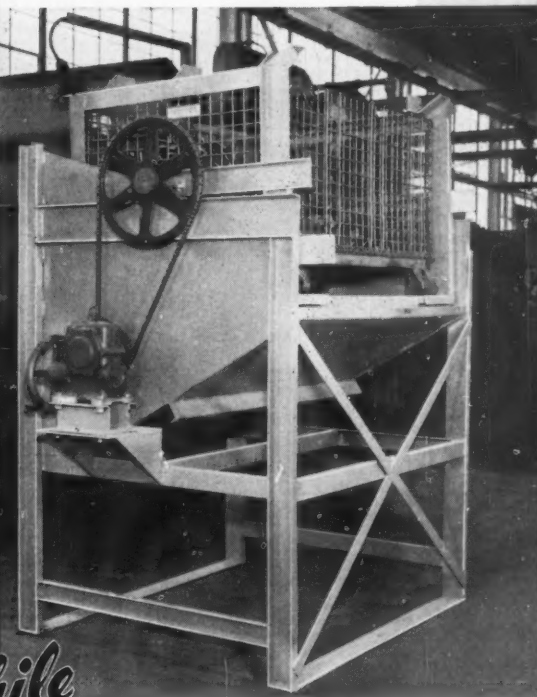
Circle No. 87 on Reader Service Card



IT'S NEW...



**Simple, Time - Saving,
Cost - Reducing, EFFICIENT,
CONVENIENT EQUIPMENT for
Controlled Dumping Operations**



Palmer-Shile

Item C-1390

BOX ROTOR DUMPER with Feeding Stand . . .

DUMPS

any size

BOX

**any type
old or new**

WIRE

STEEL

WOOD

or

COMBINATION

**Write or Phone
for complete information.
Do it today!**

COST-REDUCING:

Saves cost of equipment for particular operations, time-consuming handling of special size and box types.

SIMPLE TO OPERATE:

Load feeding stand by fork truck. Manually, Electrically or Air operated set of gears tilts box, empties parts into stand tray.

CONVENIENT:

Dumper may be transported for use in any plant area.

EFFICIENT:

Continuous flow of materials to feeding tray is made possible.

Palmer-Shile box rotor dumper is built to customer specifications of heavy duty, all-steel reinforced construction. Manual, electric or air operated rotors optional.

DESIGNED AND MANUFACTURED BY

Palmer-Shile Co.

16012 FULLERTON AVE., DETROIT 27, MICH.

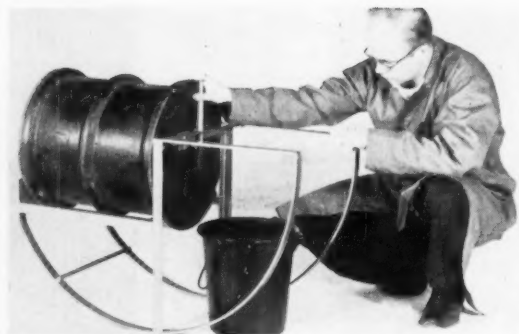
126 Dartmouth St., BOSTON 16, Mass., Commonwealth 6-0570 • 1209 Burlingame Ave., BURLINGAME, Calif., Diamond 2-0823 • 612 N. Michigan Ave., CHICAGO 11, ILL., Michigan 2-7407 • 857 Leader Bldg., CLEVELAND 14, Ohio, Superior 1-3235 • 3301 Walnut St., DENVER 5, Colo., Alpine 5-3984 • 202 Genesee Bank Bldg., FLINT, Michigan, Cedar 8-6881 • 4301 Allerton Blvd., FORT WAYNE, Indiana, Eastbrook 2816 • 835 No. Capitol Ave., INDIANAPOLIS 4, Indiana, MEloree 5-2587 • 6440 Fleet St., LOS ANGELES 22, Calif., RAYmond 3-3733 • 5107 Columbia Ave., ST. LOUIS 9, Mo., PROspect 1-1474 • 199 Main St., WHITE PLAINS, N. Y., White Plains 6-1354.



Four-Wheel Hydraulic Brakes

Four-wheel hydraulic brakes are now standard equipment on the Michigan Model 75A tractor shovel, product of Clark Equipment Company. The one-cubic yard bucket capacity unit has four-wheel drive and rear wheel steering, and is offered with either a 77 hp gasoline engine or an 80 hp diesel engine.

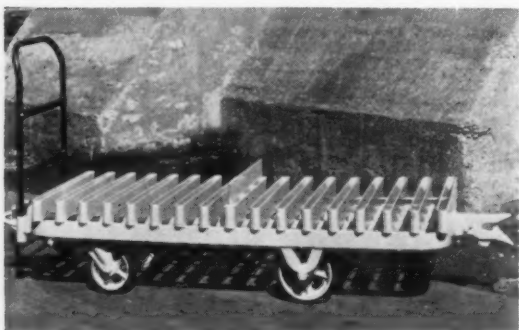
Circle 287 for more information



Controlled Pouring

Spillage and waste are eliminated with this specially designed tilter for rubber drums, claims Nutting Truck and Caster Company. It features controlled pouring, and is said to be easy to load. Lightweight and portable, the tilter rocks back to upright position after pouring.

Circle 289 for more information



Palletless Handling

Palletless handling is possible with this specially designed industrial trailer available from Mercury Manufacturing Company. Fork trucks insert multiple forks between the bars to pick up loads. Use of the trailers is said to substantially reduce man-hours required to load outgoing merchandise.


Circle 288 for more information



Automatic Dockboard

The Kelley Company, Inc. says the HI-LO dockboard is an easy and inexpensive unit for automatically adjusting the dock height to the varied height of trucks and trailers. Operation is by a simple counterweighted system with power supplied by the backing truck. Installation is said to be simple.

Circle 290 for more information



**HANDLING
SPEED GOES
UP**

Plants the country over standardize on Roebbling *All-Purpose Slings*. These slings are all steel, resist kinking, crushing. They're delivered ready for work...their tapered sleeve splices are as strong as the rope itself. Write for descriptive folder and order *All-Purpose Slings* for new speed and economy.



**HANDLING
COSTS
GO
DOWN**

ROEBBLING

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Circle No. 162 on Reader Service Card for more information

NOVEMBER, 1955

165

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FLOW DIRECTORY

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Send me () copy(ies) of the 1956-57 FLOW DIRECTORY as soon as it is available at \$6.50 a copy.

Check enclosed () Bill me ()

Bill my company (Order No.)

Please make checks payable to FLOW DIRECTORY. Ohio sales—add 3%

Name

Company

City State.....

NEW EQUIPMENT SECTION

Crane Features Live Boom

The new Model HC self-propelled hydraulic mobile crane manufactured by Mercer-Robinson Company features an exclusive boom topping actuated by a seven inch ram. When extended, the boom can be raised to a maximum height of 27 feet in a matter of seconds. Hoisting speeds range up to 100 fpm and are reversible. Hydraulic hoist and boom topping motions are said to provide safer, smoother lifting, while complete maneuverability is provided by rubber tired pivoting steering wheels. Road traveling speeds range from 3 to 30 mph, and capacities of 5-, 7½-, and 10-tons are available.



Circle 291

Fiberglas Package Cushioning

Fiberglas package cushioning which meets U. S. military specifications is now available for industrial uses from Owens-Corning Fiberglas Corp. Made in a wide range of densities to 30 pounds per cubic foot,

PROCESSING PROBLEMS?

Then you need
this **FREE BOOK**

- All the facts on the largest line of metal processing belts available
- Includes photographs, specifications on each type
- Shows Cyclone Belts on the job in many applications
- Describes various belt accessories
- The kind of book you'll want for reference.

CYCLONE FENCE DEPARTMENT
AMERICAN STEEL & WIRE DIV., UNITED STATES STEEL CORP.
WAUKEGAN, ILLINOIS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



Don't delay! Send today

USS CYCLONE METAL CONVEYOR BELTS

SPIRAL WOVEN
FLAT WIRE • FLEX-GRID



Cyclone Fence, Dept. A-115
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Gentlemen:

Please send me—without charge or obligation—your big, illustrated Catalog #5.

Name.....

Company.....

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UNITED STATES STEEL

Circle No. 53 on Reader Service Card for more information

Safe DRUM Handling



Easy to install
on any stand-
ard lift truck.

TRAY-HART. DRUM CARRIER

- ▶ Alignment compensator automatically places drums into gripping position.
- ▶ Carrier loads over drums.
- ▶ Gravity action causes gripping shoes to securely hold load.
- ▶ Release can only be effected by application of hydraulic pressure.
- ▶ Standard models handle standard 55-gallon drums in diameters from 22¼" to 24¾", and permit 6" variation in height in same load.
- ▶ Special types available for Monorail, Crane, and other applications.



TRAY-HART. CYLINDER CARRIERS

- All sizes and types of cylinders handled with ease.
- Quantity according to lift truck capacity.
- Write for complete information

Manufactured by

WALZ & KRENZER, Inc.

22 Flint Street, Rochester 8, N. Y.

Circle No. 191 on Reader Service Card
FLOW

the Fiberglas cushioning material is highly resilient and is designed for protection during shipment of delicate instruments and machinery, fragile and expensive items. Because it is inorganic, the Fiberglas material is dimensionally stable and is unaffected by change in temperature or humidity. Available in various thicknesses in sheets or rolls.

Circle 292

Inverts Paper



Skid loads of paper can be quickly inverted with this Lewis-Shepard Products, Inc. Jack-Stacker high lift walkie equipped with rotating clamp. The truck's capacity is 3000 pounds at load length of 56 inches. Clamping arms are 42 inches long by 26 inches wide; lifting height is 84 inches.

Circle 293

Improved Crane-Excavators

Incorporation of 15 major engineering improvements in its line of $\frac{3}{8}$ -cubic yard, five- and six-ton truck and crawler-mounted crane excavators at no increase in price is announced by Schield Bantam Company. Improvements include a new six cylinder gasoline engine, two-shoe swing clutch design, double hook rollers, drum lock dog, bolt-on crawler side frames and track frame extensions.

Circle 294

Compact Chain Hoist



Recently introduced by The National Screw & Mfg. Co. was this Zephyr lightweight line of all-steel spur geared hand chain hoists which feature a compact snag-proof and weather-tight full enclosure. Capacities up to five tons. Low head-room requirement permits use in comparatively tight spots.

Circle 295

Push-Button Coil Dispenser

Electrically-operated push-button steel strapping dispenser, manufactured by Allegheny Steel Band Co., will dispense $\frac{3}{4}$ -inch, $1\frac{1}{4}$ -inch and two-inch steel strapping at a rate of 250 feet per minute. It is equipped with a magnetic brake for instantaneous

Heavy-Duty Workhorse of Materials Handling... **PHIL-BOX**



The perfect answer for transporting and storing heavy castings, forgings, strip coils, and other parts and bulk materials. The box is 10 gage steel, legs are made of $\frac{1}{4}$ in. steel plate, and the capacity is 5000 lb.



Erected or collapsed in 20 seconds, boxes may be stacked four-high when full. Special leg design assures stability in stacking, and prevents spreading of sides. Smooth rolled edges and safety lock with safety catch.



Illustrations show how easily the box is erected, collapsed, and stacked. Four collapsed boxes stack in same space as one open box. Collapsed boxes save space on return shipments and in storage. Write for literature.

SALEM-BROSIOUS, INC.

13 Arch Street • Carnegie, Pa.

PHILLIPS MATERIALS-HANDLING EQUIPMENT

Manufacturers Since 1863

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Circle 173 on Reader Service Card for more information

Ametron[®] ELECTRONIC CRANE SCALE

Weights heavy loads suspended from crane hook. Printer, located in crane cab or other convenient location, records weight on tape or cards. New compact printer only 22" x 18" x 10½".

Entire assembly designed for prompt and easy installation. Now available at new low cost. Capacities 5 10 15 tons

Write for
free Ametron
Brochure R-5

STREETER-AMET CO.

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CHICAGO 13, ILLINOIS

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1888

NEW EQUIPMENT SECTION

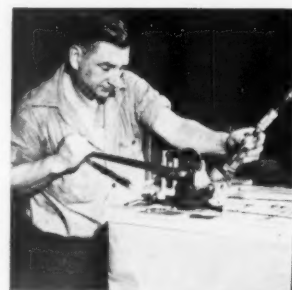
stopping and to prevent overruns. Available with or without shear, depending upon whether you need cut lengths or continuous strapping. It handles full coils of strapping.

Circle 296

Air-Powered Strapping Machine

An air-powered strapping machine that automatically tensions strapping and then seals and cuts it off in two easy motions is claimed by Signode Steel Strapping Co. to be unexcelled for fast, efficient strapping of skid and pallet loads. The Signode Model AP tool is precision engineered to furnish extremely high joint strength and is ruggedly built for low maintenance. It is designed for use with 5/8-inch or 3/4-inch Signode Steel Strapping. Because of its cast aluminum alloy base, it is only a few pounds heavier than a hand-operated seal-feed tool.

Circle 297



USE **Industrial** FOR HAND GEARED CRANES
GREATER ECONOMY



*Industrial Motor-Driven Cranes are recommended where high production rates must be maintained or runways are long.

When machinery or heavy loads are to be moved and where accurate spottings of these loads is a necessity Industrial Cranes do an outstanding job. These ruggedly built smooth operating cranes are ideal where runways are short and the production cycle is not too rapid.*

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1531 S. Paulina Street • Chicago 8, Illinois

Send Copy of Hand-Geared Crane Bulletin.

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ADDRESS

CITY, STATE

HG 654

INDUSTRIAL CRANE & HOIST CORPORATION

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KING-SIZE NESTIER



**NOW
AVAILABLE!**

NesTier meets industry's demand for a materials handling box midway between a tote pan and a heavy corrugated bin-type container. The new No. 360 is sturdily constructed of 14-gauge steel, is 36" long, 14" high, 16½" wide. Filled units tier in rigid stacks . . . empty boxes nest without sticking or jamming to save valuable floor space.

NesTier materials handling boxes and baskets are available in a variety of sizes — 12" long and larger — to fit into your materials handling picture from stockroom through assembly and production to shipping dock.

C-154-DN

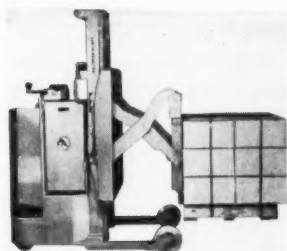
**WRITE TODAY FOR
COMPLETE DETAILS**

NESTIER

THE CHAS. WM. DOEPKE MFG. CO., INC.
8836 Blue Ash Road • Rossmoynne, Ohio
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Extendable Forks Permit Six-Foot Aisles



truck, permitting six-foot aisle operation. Capacity is 2000 pounds; top speed 4.1 mph.

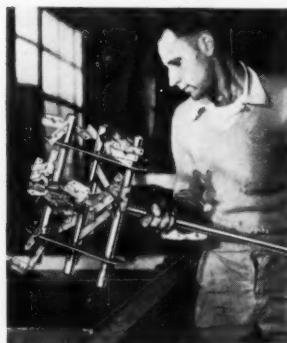
Circle 298

Compact Conveyor Stand

Available from The Alvey-Ferguson Co. is a new four-leg folding stand to support all types of portable conveying equipment. It may be quickly and easily raised or lowered to desired height. Casters, with or without brakes, may be supplied. The stand folds flat for convenient carrying, stacking and storage.

Circle 299

Dip Tank Magnet



This permanent, non-electric dip tank magnet has been termed Octopus by Eriez Manufacturing Company, and is designed for retrieving ferrous materials from or dipping metal into all types of tanks, basins or troughs. The tool weighs 9½ pounds, is approximately 12 inches square and will

lift objects weighing up to 100 pounds.

Circle 300

Combination Ladder-Truck



ladder to the floor as a unit. Stepping down and off the

Difficult-to-reach maintenance jobs are no problem at all, says Rol-Away Truck Manufacturing Company, when you use its versatile work truck with the "high altitude" extension shelf and safety ladder. The five-step ladder slides through the guides and rests solidly on the floor when the workman steps on it. This locks truck and

THERE'S A HAMILTON TRUCK *just right for you!*

NO. 880 PLATFORM TRUCK

All-Purpose—Medium Duty
1500 lbs. capacity



ROLL-N-STOR SKID TRUCKS

Regular or Heavy-Duty
1250-2500 lbs. capacity



LITE-N-TUFF HAND TRUCKS

4 models—400 lbs. capacity

HAMILTON'S COMPLETE LINE OF INDUSTRIAL TRUCKS WILL MEET ALL YOUR REQUIREMENTS!

Whether the application is routine or highly specialized, you're sure to find a Hamilton truck that's exactly right for the job! Ranging in load capacity up to 10,000 lbs., Hamilton trucks are available in hundreds of styles and sizes—platform trucks, two-wheel hand trucks, box trucks, stake trucks, shelf trucks, wagon trucks, lift truck systems, skid platforms, dollies, and many others.

Hamilton has been one of America's leading producers of floor trucks, casters and wheels for more than half a century. This manufacturing know-how is your assurance of rugged, dependable service when you specify Hamilton equipment! Tell us your requirements—we'll supply Hamilton trucks that are job-engineered and job-built to meet them! Send for complete information today!

COMPLETE CATALOG FOR YOUR FILES!

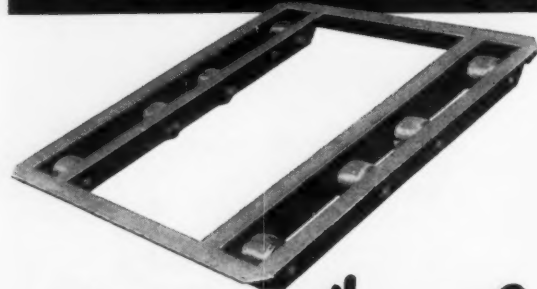
The Hamilton Castor & Mfg. Co.
1672 Dixie Highway, Hamilton, Ohio
Please Send Me a Hamilton Floor Truck Catalog!

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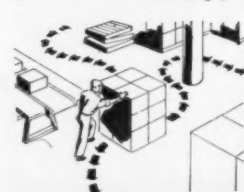
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Circle No. 161 on Reader Service Card for more information

SWIVEL KING PALLET ROLLER



ANY OLD DIRECTION *Who cares?*



ACE SWIVEL KING PALLET ROLLERS permit effortless movement of palletized loads in any direction and to any location needed. They speed up material and product movement and remove congestions when fork trucks are not available; eliminate costly delays. Ask for Eng. Bulletin 104K.

FRANK L. ROBINSON COMPANY

Industrial Engineers • Manufacturers • Distributors
LATHAM SQUARE BLDG. OAKLAND 12, CALIF.

NEW EQUIPMENT SECTION

ladder automatically releases it, springing it back to the "up" position. Construction is all-aluminum, with easily removable shelves. Potential reach is 12 feet.

Circle 301

Portable Coding Unit

A portable automatic code-dating machine that can be attached to a production line without breaking into it has been introduced by Adolph Gottscho, Inc. The new machine, identified as the Model TB Markocoder, imprints code-dates and other changeable legends on the bottoms of jars, bottles, cans, canisters and similar containers at speeds up to 600 units per minute. Portability of the machine is said to permit unusual freedom in application because it does not require alteration of existing set-ups. Container surfaces may be flat or concave, flush or recessed.



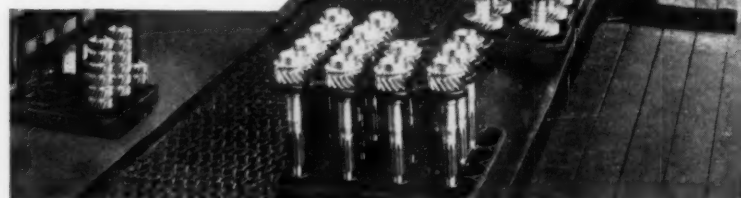
Circle 302

ASHWORTH **PROCESS BELTS**

CAN "TAKE" IT, literally and figuratively

- Heat resistant
- Chemically resistant
- Abrasion resistant

Ashworth Metal Belts combine Product Processing and Material Flow



Keep Your Product on the Move

ASHWORTH BROS., INC.
WINCHESTER, VIRGINIA

**Sales
Engineers:**

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ILLUSTRATED CATALOG
F 55



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NOLAN ONE-MAN CAR DOOR OPENER



**Opens Any Box Car
Door in 20 Seconds
or Less! \$37⁵⁰
EACH**

FREE LITERATURE

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THE NOLAN COMPANY

110 Pennsylvania Street, Bowerston, Ohio

Please send ☐ ONE MAN CAR DOOR
OPENER at \$37.50
☐ FREE LITERATURE

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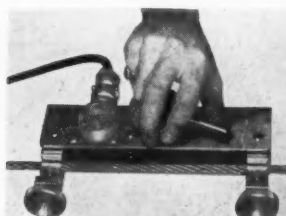
Circle No. 144 on Reader Service Card
FLOW

Steep Incline Belt

Cleated conveyor belt designed to carry loads up steep inclines is available from Goodyear Tire & Rubber Co. in a range of plies, cover thicknesses, widths and rubber compounds. Cleat widths and base reinforcements are expected to give maximum wear under normal factory use.

Circle 303

Measures Wire Rope Tension



This instrument for electrically measuring tension in wire rope may be attached anywhere on a tensioned cable by screw clamps at each end of the instrument. Baldwin SR-4 Tensiometer measures tension by force exerted on adjustable pin that deflects the cable midway between the clamps. Force measurements are transmitted to central indicator. Manufacturer is Baldwin-Lima-Hamilton Corporation.

Circle 304

Carton Clamp For Delicate Products

This new all-purpose T.V. carton clamp for especially sensitive products grabs load at sides, picks up,

PHOENIX

... Source for
Cured-on Solid Tires

For twenty-five years Phoenix has been manufacturing industrial solid tires. Its central location at Joliet, Illinois, assures prompt delivery... and often lower transportation charges for castings.

Modern quality control procedures assure uniformity of tread stock compounds. EXCLUSIVE WITH PHOENIX is the famed "E-Z" Rolling Tread Compound. Also available are special tread compounds, including static conducting, hard rubber and oil-resisting treads!



WRITE FOR FREE BOOKLET indicating sizes and load specifications. Address:

RUBBER PRODUCTS DIVISION
PHOENIX MANUFACTURING CO.
Joliet, Illinois

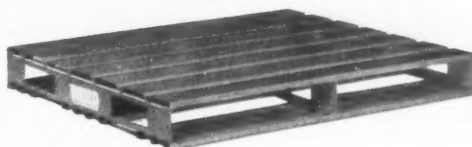
Circle 141 on Reader Service Card for more information
NOVEMBER, 1955

Move it or Stack it

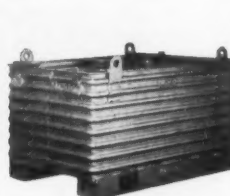


with **Brusco** HANDLING EQUIPMENT

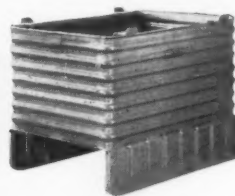
No. 930 BRUSCO PALLET



For general use in moving and stacking materials, cartons and containers. Special attention is called to large bearing surface of the bottom of the pallet. This feature assures easier and safer handling and makes the pallet adaptable for many uses. Fabricated of heavy or light gauge steel depending on your requirements. Simplicity of design and rugged welded construction make for long productive life with no maintenance cost. Can be furnished with or without fork openings for 4-way entry.



No. 558



No. 559

BRUSCO Corrugated Skid Boxes

Also manufacturers of:

BOXES - SKIDS - PALLETS - RACKS

BRUSCO self dumping hoppers

When requesting price information, please give dimensions, load capacities and quantities.

Brusco

HANDLING EQUIPMENT

BRUMMELER STEEL PRODUCTS CORP.

1410 Ionia Ave., S. W., Grand Rapids, Mich.

Circle No. 34 on Reader Service Card for more information

NOT A PRETTY PICTURE...



...but it shows **RITE-HITE** Loading Ramps have what it takes!

"Built like a battleship", RITE-HITE Adjustable Ramps operate for years without trouble, require only occasional oil-can lubrication. RITE-HITES are easy to operate, too—only light hand pressure raises and lowers the ramps. Easy to install, RITE-HITES require no piping, pumps, motors, wires, gears. Get all the facts and you, too, will get RITE-HITES. Send for illustrated literature today.

3 TYPES,
8 MODELS
to suit your
needs

•
EXCLUSIVE
PRECISION
COUNTER
BALANCING

You can be sure—when it's a RITE-HITE it's RIGHT!

RITE-HITE DIVISION, Dept. F-115,
LOOMIS MACHINE CO., 4th and PINE STS., CLARE, MICH.

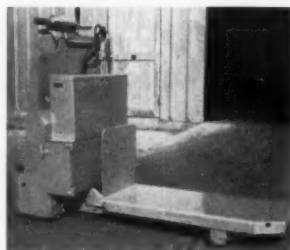
NEW EQUIPMENT SECTION

transports and stacks without use of pallets. Pressure valve adjustment permits handling of any delicate commodity in proper packages. Manufacturer is Iron Works, Incorporated.

Circle 305

For Narrow Loads

Automatic Transportation Company has available an electric driven truck with a 20 inch platform, built especially for handling exceptionally narrow loads weighing as much as two tons. Called the Transveyor, it is equipped with a self-balancing feature which automatically compensates for uneven floor surfaces.



Circle 306

Few Moving Parts In Oscillating Conveyor

An oscillating conveyor designed with a minimum of moving parts, and said to require practically no



MOVE or STORE SMALL PARTS

IN THE NEW **FIBERGLASS TOTE BOX**

- ★ light but strong to carry greater payloads
- ★ last indefinitely without maintenance
- ★ tare weight is uniform... and they lock stack
- ★ no sharp edges or corners; accident-free handling
- ★ TOTELINE tote boxes are available in color for easy identification.

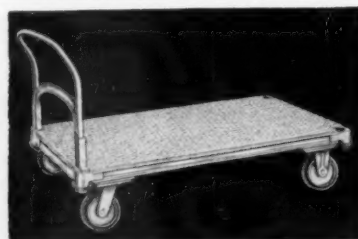
TOTELINE

Write for Bulletin 435
MOLDED FIBERGLASS TRAY CO.

LINESVILLE • PENNSYLVANIA

World's largest producers of fiberglass-reinforced resin trays and tote boxes

Circle No. 136 on Reader Service Card for more information



There's No Weight Penalty with Magliner Magnesium Platform Trucks

Push the load... not the truck! You can't make—or save—a penny pushing and handling deadweight! That's why thousands of lightweight Magliner trucks are in daily use in large and small companies alike.

Only 1/4 the weight of steel-and-wood equipment, Magliners cut down on operator fatigue... increase work output... save handling dollars! Easy to maneuver and easy to operate, Magliner platform trucks move loads faster and cheaper... keep your men in a working mood, too!

Made from the world's lightest structural metal, Magliner magnesium platform trucks are strong, tough—built for years of rugged, dependable service. Before you buy get the facts about Magliners! Write today for bulletin MPT-211 and the name of your nearest Magliner representative.

Magliner

MAGLINE INC.
P.O. Box 211
Pinconning, Mich.

In Canada:

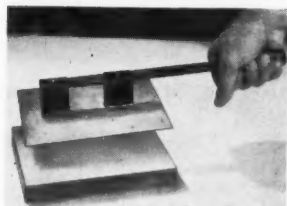
Magline of Canada, Ltd., Renfrew, Ontario

Circle No. 123 on Reader Service Card
FLOW

maintenance to run, is available from Gifford Wood Co. The unit consists of a vibrating trough driven by rotating eccentric weights. Components include a drive unit, a trough resting on rocker arms and coiled springs, and a supporting base frame. Each Oscilveyor is made up of one drive unit and any number of standard trough units. Uniform flow and gentle handling, and easy assembly and installation are featured.

Circle 307

Magnetic Hand Tool



This magnetic hand tool for sheet steel handling and feeding operations is available from Multifinish Mfg. Co. Called the Lifter and Feeder, permanent magnetic grippers pick up and hold objects for

feeding operations. The tool is turned slightly to break contact. Magnetic strength can be increased or reduced as required.

Circle 308

Easily Used Tie-Wire

Cal-Tie wire is a versatile tie wire which is supplied packaged to assure greater safety, economy and efficiency in use says Wickwire Spencer Steel Division of

**moves bulk materials
inexpensively
...quietly
...rapidly**



G-W OSCILVEYOR the VIBRATING CONVEYOR THAT PUTS ALL VIBRATION TO WORK!

Here's the most inexpensive, practical way to move most loose bulk materials—at speeds up to 50 ft. per min. G-W Oscilveyors as long as 100 ft. powered by one drive unit! Three drive weights—for better distribution, smoother running. All vibration put to work by heavy duty reciprocating springs and new-design rubber-cushioned rocker arms. If a vibrating-type conveyor fits into your picture—don't buy without seeing G-W Oscilveyor first! Write today.



GIFFORD-WOOD CO.

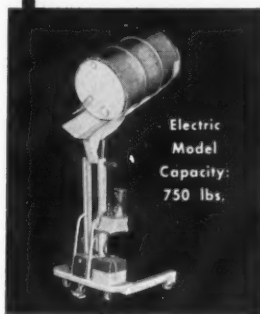
HUDSON, N. Y. AND PRINCIPAL CITIES

Circle No. 81 on Reader Service Card for more information
NOVEMBER, 1955

Cut Handling Costs

WITH *Tubar*
LIFTING EQUIPMENT

Check Urden's versatile, low-cost **Tubar** line first. Each unit is job-designed to speed and streamline materials handling—and priced so reasonably that you can start to cut your flow costs right away. Write for complete, descriptive literature.*



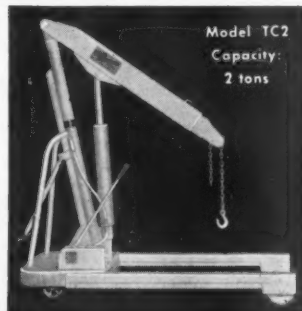
Electric
Model
Capacity:
750 lbs.

Tubar DUMPER

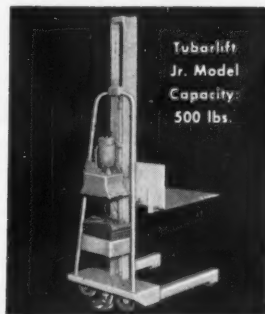
Low-cost, mobile, hydraulic unit designed to lift containers, move them, and transfer contents from one container to another. Manually operated or powered by 6-volt automotive battery. Floor locks on all models. Capacities: 750 to 1,500 lbs.

Tubar CRANE

Compactly designed to occupy far less floor space than other cranes of its capacity. Ideal for garages, shops, store rooms, and other applications where light weight, compactness, and versatility are required. Available with manual or electric power. Capacities: 1/2 thru 3 tons in 7 models.



Model TC2
Capacity:
2 tons



Tubarlift
Jr. Model
Capacity:
500 lbs.

Tubar LIFT

Hydraulic stacker, available in models with capacities from 500 thru 2,000 lbs. and lifting heights of 48", 60", 72", or 84". Also available in telescopic mast, lifting heights to 110". Choice of manual or electric power. Floor locks on all models.

U-755-92

Manufactured
by
UHRDEN, INC.
DENNISON, OHIO

Tubar
BY
UHRDEN

JOBBER TERRITORIES AVAILABLE

* Also request literature on Tubar Hand Trucks, Platform Trucks, Tubarlifts, and Tubar Dumpers.

Circle 184 on Reader Service Card for more information

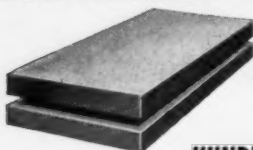
173

Circle No. 113 on Reader Service Card for more information

LANGE Hydraulic LIFT

VERTICAL LIFT from 6" to 30"

LIFTS STRAIGHT UP



MODEL 2000
TOP SIZE
24" x 60"
CAPACITIES
1000 to 6000 LB.
STANDARDS

LOWERS TO 6"
RAISES TO 30"

WEIGHT APPROX.
375 LBS.

OTHER MODELS
LIFT TO 30 TONS

FOOT, HAND
ELECTRIC AND
AIR-POWERED
MODELS

HUNDREDS OF TIME-SAVING USES
RECESSED TO FLOOR LEVEL
PERMANENTLY BOLTED DOWN
LEFT FREE TO SLIDE ANYWHERE
MOUNTED ON WHEELS

for loading and unloading • positioning
machine feeding • materials handling
die handling • conveyor applications

LANGE Hydraulic "L" TABLE

Keeps work at work-height
as a feed table. Supports
and levels sheets and bars.
Transports dies. Retention
Lock holds any position
while top remains free to
move up and down. Top
30" x 30". Table height
lowered 27", raises to 45".

MODEL L-1000 Standard
Capacities of 1, 2, 3, 4, 5
and 6000 LBS.



Write for Bulletins . . . **LANGE-LIFT COMPANY**

4275 N. 124TH ST.

MILWAUKEE 10, WIS.

NEW EQUIPMENT SECTION

The Colorado Fuel and Iron Corp. It is available with reel dispensers for use by both right and left-handed workers. Dispensers are attached with belt fittings, leaving workers' hands free for tying, carrying or holding. Both annealed and galvanized wire is available in gauges 14 through 20. Each coil weighs a minimum of 3½ pounds and the dispenser weighs approximately three pounds.

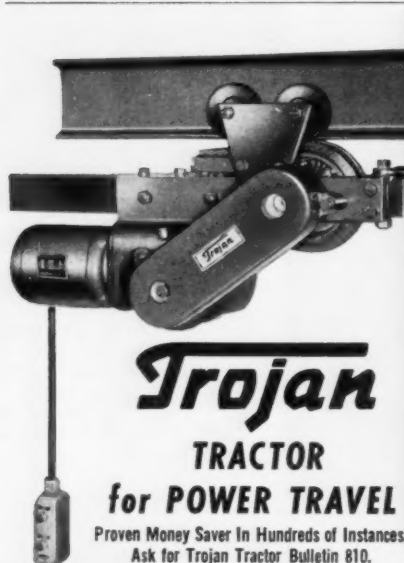
Circle 309

Filament Tape Added to Strapping Line

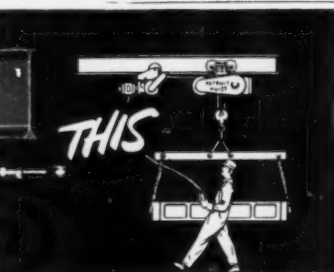
Tapebinder, a filament reinforced, pressure sensitive tape has been added to the steel strapping and wire line of A. J. Gerrard & Co. The new tape combines high strength and strong adhesion qualities and is available in ½-inch, ¾-inch and one-inch rolls, individually boxed, or in bulk. Glass filaments impregnated in a rubber base primer give the tape its strength. Portable and heavy-duty tape dispensers are available.



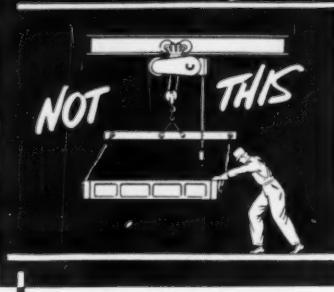
Circle 310



THIS



NOT THIS



Trojan
TRACTOR
for POWER TRAVEL

Proven Money Saver In Hundreds of Instances.
Ask for Trojan Tractor Bulletin 810.

Make your hand pushed hoists and cranes power traveled. Eliminate slow pulling and pushing drudgery. Speed up handling, save time, increase production, reduce costs. Simply attach a Trojan Tractor; inexpensive, quick delivery. Order one today.

DETROIT HOIST & MACHINE CO.

8210 Morrow St., Detroit 11, Mich.
Hoist, Crane & Tractor Designers & Manufacturers

Since 1905

Circle No. 59 on Reader Service Card for more information

• Also ask for the
Detroit Hoist & Machine Co.
New General Catalog 795



Electric Traveling Cranes



Electric Hoists

CESCO'S TOTE-SHOP BOXES

DO YOUR ROUGH/TOUGH JOB
EFFICIENTLY • EASILY • ECONOMICALLY
on Conveyors • Pallets • Hand Trucks
Skid Platforms or what have you



**STACK
SECURELY,
CONVENIENTLY!**



Solve your Storage and Handling Problems with our Tote Boxes, Trays and Pallets. Write today for quotations on special sizes. Special Marking Facilities, for identification purposes, are available in various colors and numbers. Please submit detailed specifications.

Model # WB—Wood Bottom (illus.)

STANDARD SIZES AVAILABLE FROM STOCK

Model	Size	Length	Width	Depth	Weight
WB-1	I. D.	14 1/4"	11 3/4"	9"	11 1/2 lbs.
WB-2	I. D.	18"	11 3/4"	9"	13 lbs.
WB-3	I. D.	20"	11 3/4"	9"	14 lbs.

CESCO CONTAINER CO.

Factory: NORTHAMPTON, MASS.

General Offices:

Dept. (F) 475 Fifth Ave., New York 17, N.Y.

Circle No. 41 on Reader Service Card
FLOW

Single Axle Trailer Dump



Model SSM Transporter, designed by Gallion Allsteel Body Company for operation with single rear axle tractors, is said to have exceptional stability on highway and in dump position. Especially ideal in localities where weight laws allow high individual axle weight limits combined with

Circle 311

Turbocharged Dozer



Said to be the first rubber tired dozer powered by a turbocharged diesel engine, Model 180 Turbo-Dozer has 165 hp rating, 2¾ yards capacity, four wheel drive, rear wheel steering, and road speed of 27 mph. Operational advantages claimed by Clark Equipment Company are hydraulic controls which fa-

**The trucks that
last a lifetime
... by HOWE**



HOWE — knows how — has designed trucks for industry since 1857. Outstanding features include heavy duty, all-welded, one piece, steel frame; roller bearings in all wheels, plate type, double-row swivel casters — on all **HOWE** standard and special purpose trucks.

TRUCK DIVISION
The HOWE SCALE Co.
INCORPORATED
Rutland, Vt.
Famous FIRST in '57

The HOWE SCALE Co., Inc.
Dept. F-11
Rutland, Vermont

Send more information
about the Howe truck
line to

NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY or TOWN _____ STATE _____

Circle No. 95 on Reader Service Card for more information
NOVEMBER, 1955

POWER STEERING

**STANDARD
ON NEW**

**truck-man
W-40**

***TWO TON
HIGH-LIFT**



*Capacity with a 24" load center
GUARANTEED FOR A 25% OVERLOAD

THE DRIVER IS BOSS—Not the truck. Power steering means one finger turning, even at a standstill—Reduces operator fatigue and increases efficiency. No tripping over levers or hoses getting on or off either, all dials and levers are just inches below the steering wheel where they belong for effortless handling and added safety. Tilting mast (10° backward, 3-5° forward), speedy lift and 6 inches of free lift complete the picture of a real material handling tool.

POWERHOUSE ON WHEELS—The sturdy, 4 cylinder, industrial engine produces 40 Brake Horse Power — Oversized clutch, transmission and Timken drive axle deliver it without strain. Extra wide tires, front and rear provide the traction to take full advantage of it. Speeds up to 8 mph., forward or reverse.

COMPACT—Intersecting aisles need be only 64" wide. Only 38" x 76¼" (less forks), the W-40 turning radii are only 2" inside and 71" outside.

A SOFT TOUCH FOR MECHANICS, TOO—Here's a truck *designed* for economical maintenance. Tilt cylinders, engine, transmission, clutch and other wear parts are easily worked on or removed.

VERSATILE—Standard Lift is 108"—others to order. A wide variety of fork styles and attachments are also available.

LOTS OF OTHER FEATURES—including: double acting hydraulic brakes, honed tilt and lift cylinders; but why not get the complete story? Even with power steering and extra capacity the W-40 costs less. Call your Truck-Man dealer or write today for folder and price information on the **NEW TRUCK-MAN W-40**.

OTHER truck-man TRUCKS

MODEL Y-40—TWO TON, OUTDOOR HIGH-LIFT
MODEL DHP—4500 LB., LOW LIFT SKID TRUCK
MODEL DFP—3000 LB., LOW LIFT PALLET TOWER

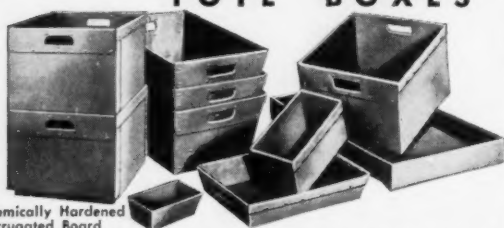
truck-man

DIV. OF THE KNICKERBOCKER CO.
582 LIBERTY ST., JACKSON, MICHIGAN

Circle No. 182 on Reader Service Card for more information

Circle No. 49 on Reader Service Card for more information


FAMOUS "CHEM-BOARD" CONVOY TOTE BOXES



*Chemically Hardened Corrugated Board

SOLD THROUGH LOCAL INDUSTRIAL DISTRIBUTORS

Cost—weigh—50% to 60% less than steel. A wide range of sizes in standard and custom made NESTING, STACKING, VERTICAL TOTE BOXES. Write for complete information, prices, name of distributor in your area.



CONVOY RECORD STORAGE FILES
Sold Only by YOUR LOCAL STATIONER
 Used by most famous names in industry and businesses of all kinds. CONVOY "CHEM-BOARD" files for record storage made in letter, legal, and 12 other sizes. Stack to ceiling, mate together. Call your local stationer or write for name of stationer nearest to serve you.

CONVOY, INC.
 Canton 6, Ohio
 P. O. Station B, Box 216-F

1 man



...handles
Sheet Steel
Faster. Easier
 with a
C-F LIFTER

C-F Lifters, under one man operation, pick up, carry and unload more sheet steel tonnage per hour than any other method — and at lower cost per ton. Wide carrying angles hold sheets securely — won't damage high grade sheets; tong action insures safe carrying; fast opening and closing adjustments of Lifter jaws permit shifting from one size pack to another in seconds. C-F Lifters are made in standard or semi-special models to handle from 2 to 60 tons.



CULLEN-FRIESTEDT CO.
 1320 SOUTH KILBOURN AVENUE • CHICAGO 23, ILLINOIS



Write for Bulletin SL-28 for specific examples of C-F Lifter operation and economy.

Circle No. 51 on Reader Service Card for more information

NEW EQUIPMENT SECTION

Facilitate easier maintenance, a bowl which can be tilted by the operator while machine is in motion, and the ability to move under its own power over the highway.

Circle 312

Loading and Stacking Pushbutton Controlled

Both loading and stacking is provided by this pushbutton controlled unit available from R. T. Sheehan Company. Conveyor consists of drive car, center cars and power traveler car. Drive car powers flexible belt; center cars determine length of unit; power traveler car moves conveyor back and forth. Flexible belt conveyor bends on 72 degree radius either direction.



Circle 313

Machine Imprints Wirebounds

Adolph Gottscho, Inc. has a machine for imprinting the top, ends and the sides of wirebound containers on the production line. Special mechanisms are built into

FOR PHENOMENAL SAVINGS IN PLANT LAYOUT



FROM LAYOUT TO BLUEPRINT WITH NO DRAFTING



TemPrints are outline prints on transparent film, reproducing to exact scale the standard machines in your plant or made to engineering specifications of your particular equipment . . . they also include all office, materials handling, assembly, with tapes for walls, partitions, aisles, etc.

TemPrint Grids are transparent sheets cross-lined to 1/4" scale suitable for layout and floor plans.

When TemPrints are cut out and applied to the grids, the result is an accurate layout of your plant or office. Any number of duplicate prints accurately reproduced in the same size may then be made by processing through an Ozalid machine.

SIMPLY MAKE THE LAYOUT—AND THE LAYOUT WILL MAKE YOUR PRINTS

SCALE INDUSTRIAL MODELS



Harman has specialized in scale models for many years. Harman Miniatures are accurate reproductions to scale of well-known plant machinery and equipment. All models are dimensionally accurate — may be identified instantly. A special catalog is available on request.

SEND FOR CATALOG TODAY!

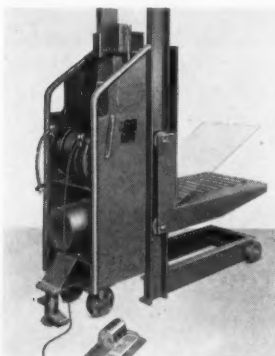
HARMAN ASSOCIATES
 HALESITE, L. I., NEW YORK

Circle No. 90 on Reader Service Card
 FLOW

the unit to compensate for lightweight construction of wirebounds, the recessed ends, the wavy non-uniform surface and the interference of wires surrounding the container. For use, it is recommended that the machine be set up on a production line where it can receive boxes from a packing line conveyor. It prints automatically and discharges to the next station. It is claimed to be adaptable to printing any combination of surfaces up to five sides.

Circle 314

Heavy Duty Portable Elevator



Especially designed for the metal working, plastic and allied industries is this 3000 pound capacity manually operated portable elevator. Among its features are: a 20 by 36 inch roller equipped platform with hinged cover plate; electric-mechanical lift through 3 hp motor; platform lifting speed of 58 inches per minute;

platform travel 41 inches. Available from The Hamilton Tool Company.

Circle 315



* give it the specific tool
to do your job...

A KUGHLER TOOL!

There's a self-actuated Kughler attachment with efficiency to meet any fork truck handling requirement... as easy to install on your present equipment as standard forks.

They assure you design that outwits trouble—turns problems into profits.

A complete range of standard and special Kughler units are available for quick delivery. For special developments, please outline your problems for us.

Ask your dealer—or write, wire or phone Kughler. We'll recommend—you decide. Fair enough?

Drummaster—Drums-in-the-vertical handler
Bailemaster—Bale Handler
Pushmaster—Self actuated pusher
Load Stabilizer—automatic—no oversqueeze
Platemaster—Loose Plate Handler
EE-4—Elevating Forks
M-50—Drum-O-Matic—Automatic Drum Handler,
Self-adjusting to axial sizes
U-9—Universal Drum Handler—horizontal or vertical
S-12—Adjustable Drum Handler, single or double
Beer Keg and Keg Handler—Rigid—1/2's and 1/4's
Drum Tongs—4 to 6 Drums
Manual Drum Snaphooks—Vertical and Horizontal
Automatic Loose Bulk Attachment • Folding Forks
Shovels—Utility • Reversible Forks
Extension Forks • Shock Absorbing Forks
Swing Forks • Prongs and Special Fork Developments
Round Forks • Tines

KUGHLER

DEVELOPMENT CORPORATION
MATERIALS HANDLING SPECIALTIES DIVISION

230 PARK AVENUE •

• NEW YORK 17, N. Y.



Circle 172 on Reader Service Card for more information



① **SPUN END, ONE PIECE ROLLERS**... consisting of carrying surface and ends spun from a single piece of heavy gauge steel tubing plus an inner bearing tube welded to spun ends. Standard carrier, 4" diam., 5" diam. also available.

② **PERMANENTLY SEALED**... precision ball bearings are protected by a die-cast double labyrinth seal which will not corrode or wear, insuring protection of bearings from dirt and moisture.

③ **PRE-LUBRICATED**... sufficient grease is sealed into each roller to last the normal life of the carrier—Alomite fittings also provide for easy re-lubrication.

④ **INTERCHANGEABLE ROLLERS**... pre-adjusted 4" diameter rollers slide easily in or out of the hex-slots in the supporting brackets without tools.

Drawing shows spun end roller construction, die-cast labyrinth seals and precision ball bearings in position.

IN STOCK FOR IMMEDIATE DELIVERY!

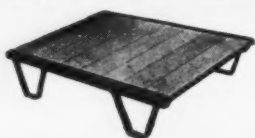
WRITE FOR CATALOG 554

STANDARD PRODUCTS DIVISION
STEPHENS-ADAMSON
MFG. CO.
36 Ridgeway Ave. Aurora, Illinois

Circle No. 108 on Reader Service Card for more information

Circle No. 103 on Reader Service Card for more information

In production or in storage IRONBOUND EQUIPMENT HANDLES SMALL PARTS MORE EFFICIENTLY



Standard 2-way entry bolted type skid built to handle loads up to 5 tons.



Standard box top welded to standard skid. Available too, with removable boxes. Handles many items in production and storage.



Flexible arrangement of boxes and skids permits tiering and stacking to meet your individual requirements. Provides quick availability, easy handling, or storage for complete units or parts.

Each of the units illustrated has an important use in modern industry. Ironbound skid platforms and box tops are prime sources of increased plant capacity so vitally needed today. Our representative can help you to increase your output and plant space. Catalog GP-7 may help you, too!



IRONBOUND

BOX & LUMBER COMPANY

Materials Handling Division

30 HOFFMAN PLACE • HILLSIDE, N. J.

MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, ROLL TRUCKS, DOLLIES AND PLY BARS

NEW EQUIPMENT SECTION

Electric Car-Icer

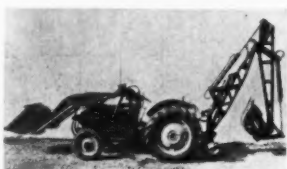
Developed by Automatic Transportation Company for loading ice into railroad passenger cars, this electric truck can lift 4000 pounds of ice 150 inches for unloading through tops of cars. It is equipped with special icing grates and a drip pan. Dual controls let operator ride up to transfer ice.



Circle 316

Heavy-Duty Loader

A heavy-duty industrial loader to fit International I-300 tractors has been announced by Wagner Iron Works. New Model WMD-6 loader operates off tractor's own hydraulic system and utilizes half yard bucket as standard. Equipped with twin, self-equalizing attachment cylinders.



Circle 317

RENT OR BUY
SILENT HOIST
LIFTRUK
on the
**"DAY-BY-DAY
EARN-ITS-WAY
PLAN"**

3-5-7½-10-15 ton
CAPACITIES



If you can reasonably use a Heavy Duty LIFTRUK for at least two hours a day average, to improve the movement of goods in process or reduce materials handling operations, then you should be interested in this unusual "rent-or-pay-as-you-use" plan. Proper cost accounting methods often show that man-hours saved, storage space gained, or time in transit reduced, add up to a profit well above the payments required for LIFTRUK for purchase or rental charges.

Write for "Earn-Its-Way" Plan to



SILENT HOIST & CRANE CO.

Pioneer Mfrs. of Heavy Duty Materials-Handling Equipment
888 63rd Street, Brooklyn 20, N. Y.



Circle No. 171 on Reader Service Card for more information

NEW LONDON "Cost Cutter" CONVEYORS

Light • Low Cost • Versatile
for . . .
BOXES, BAGS
BUNDLES,
BALES

14' ALUMINUM
MODEL SHOWN

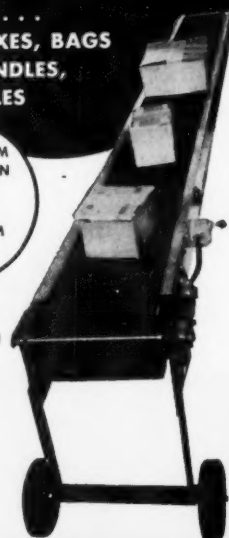
\$484

OTHERS FROM

\$340

Electric or
gasoline drive.
Other flat and
trough belt
conveyors for
inclined or
horizontal
applications.

Write for
Catalog

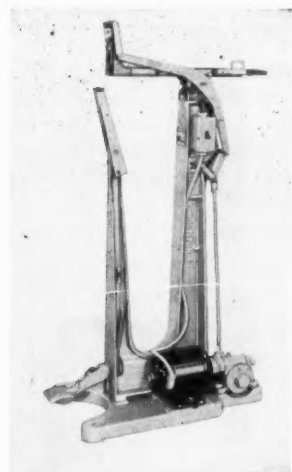


NEW LONDON ENGINEERING CO.

New London, Dept. F, Wisconsin

Circle No. 143 on Reader Service Card
FLOW

Wide-Crown Bottom Stapler



The Bostitch F94 Box Bottomer drives a heavy-duty, copper-coated staple which straddles the container seam where outside flaps meet and fastens them tightly to the inner flaps. Staples are spaced up to five inches apart to meet standard freight specifications. Three or four of the staples do the work which usually requires 12 to 16 staples of the customary size, it is claimed. The F94 is available for foot or

motor operation. The motorized unit, which operates at 186 strokes per minute, is recommended for volume production.

Circle 318

Crane Safety Device

Developed primarily as a safety device by Femco, Inc., this new control system for crane runways permits workers to attend to disabled crane without danger from other cranes approaching on the same run-

Circle 131 on Reader Service Card for more information

YOUR BEST MOVE IS TO MOVE WITH MERRILL MATERIAL HANDLING DEVICES



For Interesting Information write

MERRILL BROTHERS

56-74 ARNOLD AVE., MASPETH, N. Y.

3-2-5

CONVEY, TRANSPORT BULK MATERIALS the Faster, Cheaper Way...

WITH

Baughman EQUIPMENT

BAUGHMAN Model 210 Inclined ELEVATOR

Spaced buckets-on-belt; lengths from 20' to 60'; buckets available in 8" to 18" widths; with 11 inch buckets, the model 210 has approximate capacity of 50 tph for 100-lb. material. Write for Bulletin A-392.

BAUGHMAN Model TST-10 Bulk Cement Transport Body

Custom-built for trucks or trailers. Twin-auger discharge. All controls outside of body. Lengths 9' to 35'. Bulletin A-376.



BAUGHMAN MANUFACTURING COMPANY, INC.

106 ARCH STREET • JERSEYVILLE, ILLINOIS

Circle No. 29 on Reader Service Card for more information

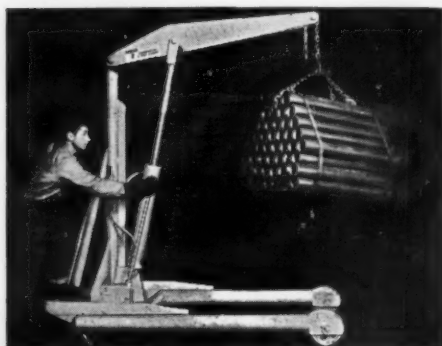
NOVEMBER, 1955

179

Circle No. 166 on Reader Service Card for more information

Anything You Can Hang on a Hook Can Be Easily Handled by a **RUGER CRANE**

Move heavy, bulky loads easily, quickly—with one man and a Ruger Hydraulic Floor Crane. Capacities from 1/2 to 3 tons.



SUBSTITUTE FOR AN ELEPHANT[®] **RUGER CRANES**

401 West Fourth St.
UHRICHSVILLE, OHIO



SEND FOR 1955 CATALOG
Shows the complete Ruger 1955
line of Floor Cranes. Gives full
specifications. Truck mounted
hydraulic cranes also available.
Capacities 1/2 ton to 2 tons, write
now for your copy.

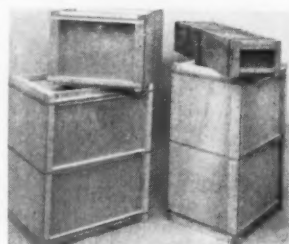
NEW EQUIPMENT SECTION

way. The system automatically gives warning of the approach or shuts off movement of oncoming crane. Equipment consists of receiver and receiver loop for each crane or other fixed location and portable transmitter with transmitter loop to be positioned wherever temporary protection is required.

Circle 319

Unique Panel Box

No nails or screws are required for closure of the Panel-Lox Box claims Cardinal Containers. Embodying a unique method of panel construction and panel assembly, the container features strong members that can be pre-fabricated in volume with standard wooden, wirebound, or cleated box-making equipment. Members may be stored and shipped in knockdown condition, thus affording important cost savings in storage and handling costs. Opposite panels are interchangeable to simplify packing, storing and manufacturing.



Circle 320



Seven Major Consolidated Freightways Terminals Save 25% with *Nutting* Tow-Line Trucks

In addition to 25% savings in cross dock handling, Mr. J. H. Howay, Supt. of Terminals, reports reduced damages, speeded up departure schedules and fewer astray shipments.

In motor freight terminals, plants and warehouses, Nutting Tow-Line Trucks are cutting costs daily. Here's why . . .

Less Supervision	Reduced Handling Cost
Unattended Transportation	No Unpleasant Exhaust Fumes
Less Maintenance Cost	No Oil & Scum Deposits on Floors

Whatever your loads and operating conditions—whether for Tow-Line Systems or for manual operation, there are Nutting Trucks to exactly suit your needs. Investigate cost-cutting Nutting Trucks today.

NUTTING TRUCK & CASTER CO.

1609 DIVISION ST., FARIBAULT, MINN.

Export Sales Rep.: Scheel International, Inc., 4237 No. Lincoln Ave., Chicago 18, Ill.

Circle No. 146 on Reader Service Card for more information

For complete details write for your copy of Bulletin 54-TL. Or call your Nutting Sales Engineer . . . he's listed in the yellow pages under "Trucks" or "Casters".

QUALITY
BUILT
Since 1891



THE MODERN MECHANICAL MESSENGER SYSTEM

Airmatic pneumatic tube systems do their jobs so smoothly, so efficiently, so quickly that they don't receive any "fanfare" and "fuss". They're just taken for granted as time, labor and money savers in providing for the transporting of bottles, parts, samples, fragile medical supplies, complete files and IBM cards as well as the traditional uses for transporting papers and money.

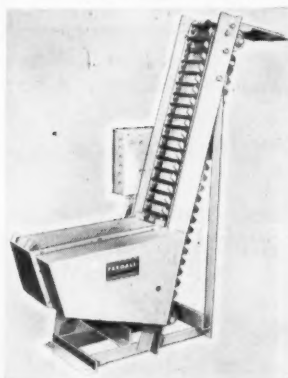
There's an AIRMATIC SYSTEM for your need. Contact your local representative or the AIRMATIC home office for further information.

AIRMATIC SYSTEMS, INC.

378 Bergen Blvd., Fairview, N.J.
Phone: CLi#side 6-0475

Circle No. 4 on Reader Service Card
FLOW

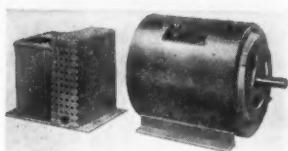
Loads Automatically



Circle 321

Elevating magazine loader No. 4000 was designed by Feedall, Inc. to handle short bars, studs, etc. up to six inches long. The unit takes parts from the magazine, elevates them to desired height and presents them for feeding to next production machine. Delivery rate can be varied from one to 12 pieces per minute.

Extends Power



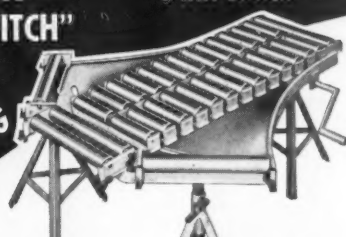
The Mo-Bil-Ac, a new portable source of AC power, delivers up to 10 KW at 110-220 volts, greatly extending the use of power tools and motor driven machinery in locations away from power lines. The compact, lightweight unit utilizes as a prime mover the engine of the vehicle in which it is carried, and supplies alternating current at commercial voltages and fre-

quency. The Mo-Bil-Ac, a new portable source of AC power, delivers up to 10 KW at 110-220 volts, greatly extending the use of power tools and motor driven machinery in locations away from power lines. The compact, lightweight unit utilizes as a prime mover the engine of the vehicle in which it is carried, and supplies alternating current at commercial voltages and fre-

Circle 132 on Reader Service Card for more information

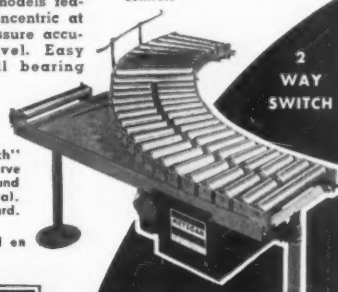
METZGAR "FLEX-A-SWITCH" ECONOMICAL DEPENDABLE FAST SWITCHING

3 WAY SWITCH



Three Way "Flex-A-Switch" with standard manual control.

Metzgar "Flex-A-Switch" in wheel or roller models feature all axes concentric at any setting to assure accurate line of travel. Easy running — ball bearing throughout.



2 WAY SWITCH

Two Way "Flex-A-Switch" at right used with 45° curve to effect a 90° turn, and with electric control (extra). Manual control is standard.

Specific details furnished on request. No obligation.

METZGAR CONVEYOR CO.

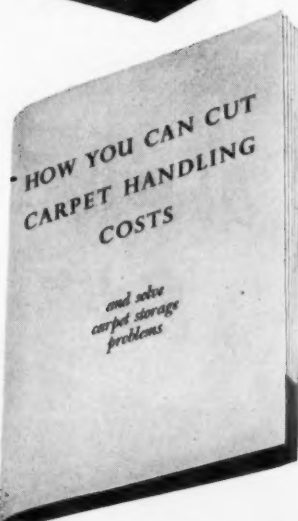
423 Douglas St., N. W.

MFRS. OF WHEEL & ROLLER GRAVITY & LIVE ROLLER CONVEYORS • POWER BELT CONVEYORS • SWITCHES • ACCESSORIES & REEL DOLLIES

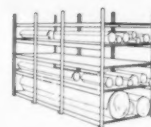
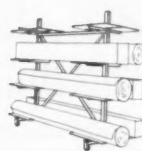
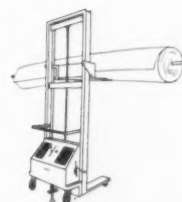
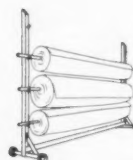
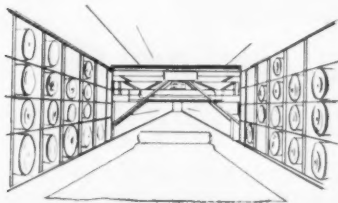
GRAND RAPIDS 4, MICH.

CARPET HANDLING PROBLEMS SOLVED!

This Booklet
Tells All!



Complete portable or permanent type systems installed to fit all requirements.



SEND FOR FREE COPY TODAY

THE ROBERTS CO., Dept. F.L.—511
1536 N. Indiana St., Los Angeles 54, Calif.

Please send my free copy of "How You Can Cut Carpet Handling Costs."

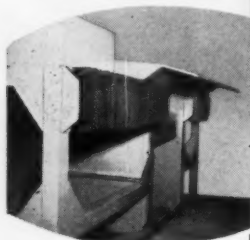
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SPEED HANDLING *with this TEAM*

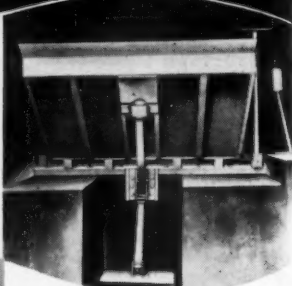
HERCO ADJUSTABLE DOCKBOARD

Two standard sizes 48" and 60" or custom fabricated. Spring-action counterweight. Has easy side to side adjustment.



Learn how to
STOP PROFIT LEAKS

Write for FREE
Illustrated
Brochure.



plus HERCO-FLEX RUBBER BUMPERS

Rugged, scrub resistant rubber that absorbs shock, rides with truck to eliminate splintering and necessary replacement of dock timbers. Low cost expeditors that make loading and unloading faster.

Karl A. HERMAN Company
412 FULLER AVE., N.E. GRAND RAPIDS, MICHIGAN

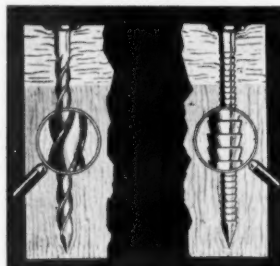
NEW EQUIPMENT SECTION

quencies, single or polyphase. Manufacturer is Star-Kimble Motor Division.

Circle 322

Secures Pallets, Boxes, Anchor Plate

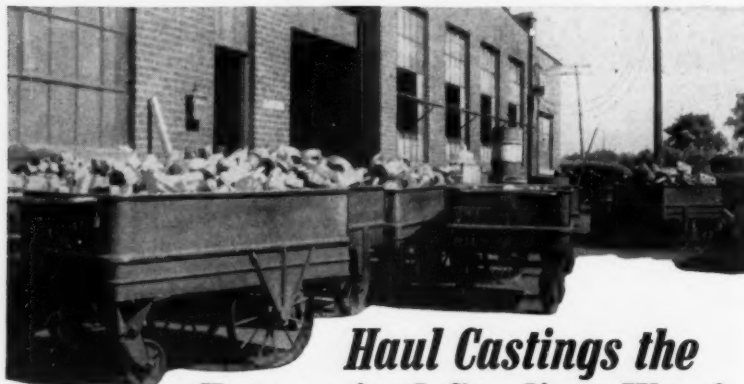
Frank L. Robinson Co. says these drive screw and fetter ring nails are the result of many years of technical and field experience. Features pointed out are uniformity and precision, high carbon steel, sharp points, smooth flat heads, clean threads and fetters, and smooth shank under head for machine nailing. May be used for securing of pallets, boxes, crates, anchor plate, etc.



Circle 323

Do-It-Yourself Slings

Columbus McKinnon Chain Corporation's recently introduced coupling link enables alloy chain users to make up their own sling and special assemblies. Called



Haul Castings the Economical Sterling Way!

These all-steel, heavy duty trucks come in handy for hauling castings to and from cleaning room. With roller bearing wheels and ball bearing swivel casters, they glide along smoothly, maneuver easily. Save both time and labor. Capacity 2,000 lbs. Sturdy, reinforced welded construction. Write for literature.

STERLING WHEELBARROW CO., • Milwaukee 14, Wis., U.S.A.

Sterling

FOUNDRIY EQUIPMENT



Circle No. 174 on Reader Service Card for more information A 8530-1/2

BOWERS BATTERIES

*Always
Better*

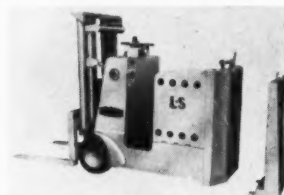
BOWERS BATTERY & SPARK PLUG CO., READING, PA.

Circle No. 32 on Reader Service Card
FLOW

Hammerlok, the link consists of a pair of body halves, a tubular stud and a hardened alloy steel pin. No peening or welding is required, and the link can be disassembled and re-used.

Circle 324

Dual Capacity Truck



Capacities of 2000 pounds and 4000 pounds are possible with the same model MultiMaster electric fork truck. The quick change in capacity is accomplished by an easily removable 1325 pound counterweight at the truck's rear, according to Lewis-Shepard Products, Inc. The truck contains 4000 pound components throughout, and is said to be ideal for use in motor freight terminals.

Circle 325

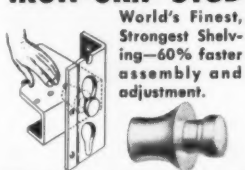
Paper "Wraps-out" Rust

Instant acting Nox-Rust vapor-wrapper is a chemically active paper that is said by Daubert Chemical Co. to block rust in one simple operation. It is essentially a sheet of packaging paper treated with "Callex" a patented chemical that vaporizes and counteracts the corrosive tendency of moisture. Under favorable con-

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NOW! 4 TYPES OF EQUIPTO SHELVING

IRON GRIP STUD



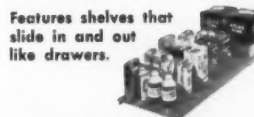
World's Finest, Strongest Shelving—60% faster assembly and adjustment.

CLIP

Permits instant adjustment of shelves with flanges up or down.



SLIDING SHELF



Features shelves that slide in and out like drawers.

NUT & BOLT



The budget-priced type with bolted shelf assembly.

CLIP AND MAIL COUPON FOR FULL FACTS

Equipto Division of Aurora Equipment Co.
805 Prairie Avenue • Aurora, Ill.

TELL ME MORE ABOUT FOLLOWING TYPE:

☐ stud ☐ sliding shelf ☐ clip ☐ bolt and nut
☐ Have Layout Engineer Call

NAME _____
FIRM _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

HANDLE COAL AUTOMATICALLY!

"TAKE IT UP A FLO-TUBE®"

The spiral conveyor of steady, dependable service. Sturdy cast iron trough bolts together in 3 ft. sections, capped with steel plates for easy removal if ever necessary. Built to take the abuse of coal, yet with tolerances just right to handle materials from grain size to lump.

To fill 3 or more hoppers use gate-valves in Flo-Tube horizontally. Below, filling 2 hoppers with "Y" chute.

Hopper level maintained by "off-on" automatic switches. Exposed end for pick-up

CANTON STOKER CORP.

SPECIALISTS IN AUTOMATIC COAL FIRING, HANDLING AND CONTROL EQUIPMENT
108 ANDREW PLACE S. W. • CANTON, OHIO

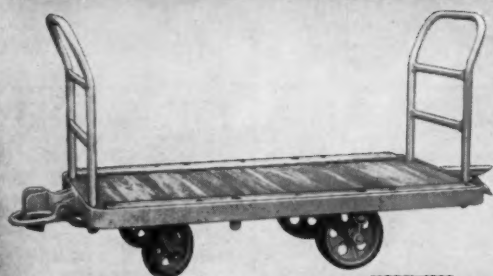
HERE'S A PARTIAL LIST OF FLO-TUBE INSTALLATIONS . . . YOU MAY WISH TO VISIT AND INSPECT ONE NEAR YOU—

HIGH SCHOOLS, COLLEGES:	NO. IN SERVICE
Hereford Jr.-Sr. High School, Hereford, Maryland	2
North High School, Akron, Ohio	2
St. Mary's Czeist School, Milwaukee, Wisconsin	1
Robert A. Taft High School, Cincinnati, Ohio	2
Sacred Heart Seminary, Detroit, Michigan	1
Frostburg State Teachers College, Frostburg, Maryland	1
Sisters of Good Shepherd, Indianapolis, Indiana	1
Hillsboro High School, Hillsboro, Missouri	2
Ambridge High School, Ambridge, Pennsylvania	1
School No. 215, Baltimore, Maryland	2
HOSPITALS:	
Charleroi-Monessen Hospital, N. Charleroi, Pennsylvania	1
St. Elizabeth's Hospital, Youngstown, Ohio	1
Miners Hospital, Frostburg, Maryland	2
APARTMENTS, BUILDINGS:	
Laird Building, Tiffin, Ohio	1
Montgomery Gardens Apartments, Jersey City, New Jersey	2
Russell Lamson Hotel, Waterloo, Iowa	1
INDUSTRIAL PLANTS:	
Sugardale Provision Company, Canton, Ohio	1
Cincinnati Shaper Company, Cincinnati, Ohio	2
Cooper Tire & Rubber Company, Findlay, Ohio	1
Beckett Bronze Company, Muncie, Indiana	1
A. Grass & Son, Newark, New Jersey	1
Milwaukee Asphalt Plant, Milwaukee, Wisconsin	2
GREENHOUSES:	
E. A. Dreger Greenhouse, Cleveland, Ohio	1
M. F. Cutting & Sons Greenhouse, Cleveland, Ohio	1
Thomas F. Browne Greenhouse, Detroit, Michigan	2
Boyer Bros. Greenhouse, Cleveland, Ohio	1
Ray Fitkin Bros., Sylvania, Ohio	1
Jensen's Greenhouse, Warren, Ohio	1
Dulabahn's Florists, Canton, Ohio	1
Berea Greenhouse Company, Berea, Ohio	2
Patterson Flowers, Shelby, North Carolina	1
United Greenhouse Company, Cleveland, Ohio	3
A. C. Radke Greenhouse, Cleveland, Ohio	1
Bunker Hill Greenhouse, Medina, Ohio	1
DAIRIES, BREWERIES:	
Miller Dairy Farms, Eaton Rapids, Michigan	1
United Dairy Company, Lodi, Ohio	1
Lake to Lake Dairy Corp., Kiel, Wisconsin	1
Schoenling Brewery, Cincinnati, Ohio	1

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JAKES

**America's Finest
Industrial Trucks and Trailers**



MODEL 1500

Literature available
Capacities from 2,000 to 10,000 pounds

JAKES FOUNDRY COMPANY

Established 1891

2800 Charlotte Avenue

Nashville 9, Tennessee

NEW EQUIPMENT SECTION

ditions of storage, Nox-Rust Vapor-Wrapper will provide protection for as long as ten to fifteen years. It is pliable and easily molded or folded into any desired shape.

Circle 326

Brazing Tray

Here's a tray designed for small parts brazing at elevated temperatures. Constructed of type 330 alloy throughout, all corners are reinforced to absorb shock and prolong tray service life. Available from Wiretex Mfg. Co. in a variety of sizes and shapes.



Circle 327

Quarter-Inch Stencil Cutter

The March Stencil Machine Co.'s 1/4-inch stencil cutter features raised guide lines for rapid and accurate alignment of stencil, aluminum rotating parts, shock-free centering. It is made in hand-operated and electric models.

Circle 328

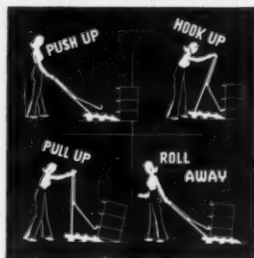
NEVER UNDERESTIMATE THE POWER OF A WOMAN WITH "George".



Yes . . . women can operate this compact, almost-automatic, roller truck as easily as men . . . without dangerous lifting or strain. Hook is attached to heavily laden tote box, then forward motion of truck handle glides load over rear beveled edge of truck and onto upper set of rollers. Box is held stationary while lower traction rollers carry the truck to destination.

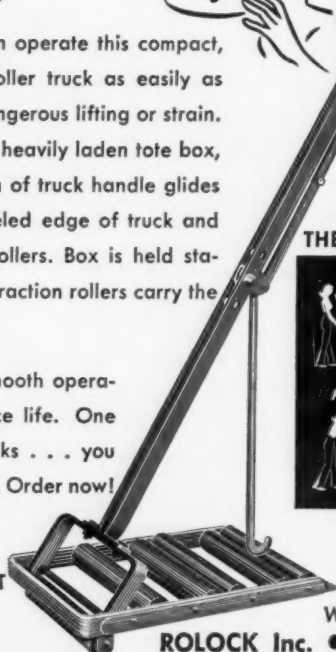
Low-cost, safe, smooth operation . . . long service life. One buyer uses 150 trucks . . . you can use one or many. Order now!

"George"
THE TOTE BOX TRUCK



*TRADEMARK

LET "George" DO IT



Write for free folder F
ROLOCK Inc. • Fairfield, Conn.

SRG55A

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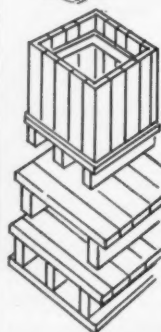
Harvey Sez:

**They're Cheaper—
But By Golly—we
make 'em good and
we can show ya!**

I know we make good pallets and boxes but by gosh, I didn't know there was such a need for them. A trial order will prove my argument.



Up here in the hills, we mind our own business and turn out pallets, boxes and skids at a price that makes it downright embarrassing for competition. We have representatives in 86 cities but, if there isn't one to take care of you in your own home town, send us your requirement and we will take a crack at them. 5 mills in the East and 3 in the Midwest to serve you.



SUPREME MFG. CO.

P. O. Box 63
BERGMAN, ARKANSAS

Circle No. 176 on Reader Service Card

FLOW

MANSAYER GRABS® STACK HIGHER



Every Mansaver Grab is built to stack loads high and to take very little headroom. Where ceilings are unusually low, Mansaver can supply a grab that takes almost no space from the top of the bundle to the hook.

Higher stacking always conserves floor space. It may save the addition of expensive storage area. Mansaver's Low Headroom feature, together with its safe, fast handling of stock, often makes practical the installation of a hoist or crane. And Mansaver Grabs pay their cost remarkably soon.

It will pay you to talk with our representative about your materials-handling problem. He will be glad to put our thirty years of experience at your disposal.



★ MANSAYER INDUSTRIES, INC. • 3103 EAST ST., NEW HAVEN, CONN. ★

Ready Soon...

Order Now...

The 1956-57 FLOW Directory

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Name

Company

City State

To be sure! YOU CAN GET
BETTER PRODUCTION
IN YOUR PLANT



TIME RECORDER-TOTALIZER



PRICE \$55.

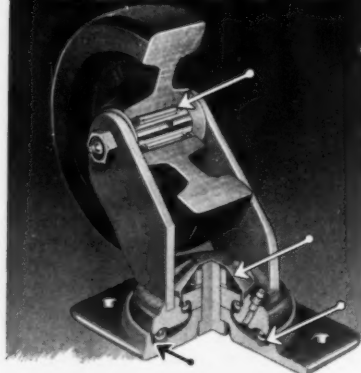
• This precision instrument provides accurate, permanent, chronological data about any machine, process or system in plant or office ...on a continuous chart-roll which lasts four months. Uses no ink. Totalizer shows accumulated "on" time.

descriptive literature FL on request

**STANDARD INSTRUMENT CORPORATION DIV.
HEAT-TIMER corporation
657 BROADWAY, NEW YORK 12, N.Y.**

Circle No. 98 on Reader Service Card for more information

new!



COMPLETELY SEALED CASTERS

Another first for Albion casters! A completely sealed caster that stays sealed... completely eliminating the need for periodic maintenance due to grease loss, dirt, debris, water or other foreign matter.

Albion casters have been completely redesigned to incorporate precision moulded Synthi-Rubber ring gaskets around the load raceways and the wheel axle ends. In addition, a formed steel, leakproof retainer cup is press-fitted over the thrust raceway... thus, Albion's completely sealed casters outlast ordinary casters and save your equipment dollars.

HERE'S WHY... Albion caster engineers would not accept the so-called "sealed casters" available which employed flat rubber, felt or steel baffles as "seals". As a result, they designed and developed precision moulded Synthi-Rubber gaskets to guarantee a truly sealed caster to solve your caster problems.

Albion's new completely sealed casters are available in a broad range of popular sizes and wheel types to suit your needs.



ALBION INDUSTRIES, INC.

ALBION, MICHIGAN

Circle No. 5 on Reader Service Card
186

CLASSIFIED ADVERTISING

Used Equipment—Men—Jobs—Lines

Rates: for "Positions Wanted" \$8.00 minimum, limit 25 words. For all other classifications \$10.00 minimum for 25 words; each additional word 25c. Boldface type or all caps, \$12.00 minimum for 25 words, each additional word 35c. Box address counts as five words. All insertions payable in advance.

CONSULTANT

MINCH ASSOCIATES, INC.

Plant Layout
Production Control
Material Handling Consultants
P. O. Box 104 Eastwood Station
Syracuse 6, New York

HELP WANTED

PLANT ENGINEERING AND LAYOUT

Experienced men wanted for interesting and varied assignments by organization operating on international scale. Salary commensurate with qualifications. Send complete education and employment history, references who may be contacted and recent photo. Write c/o FLOW, Box 11155.

HELP WANTED

West coast manufacturer of overhead conveyors has opening for graduate engineer with conveyor experience and some metallurgy background. In reply please state full personal particulars, industrial background and salary requirements. Write, c/o FLOW, Box 11255.

FOR SALE

Approximately 200' used Alvey gravity conveyor 16" wide, 2 1/4" diameter rolls on 4" centers, with 3-45° and 11-90° turns; also 250' skate wheel conveyor, 10 wheels per foot with 5-45° turns and 8-90° turns, plus 11 individual belt conveyors from 12'-58' long and motor drives; all conveyors installed new in 1948. Priced as low as \$5.00 per foot (also some older gravity and belt conveyors priced at \$1.50 per foot). "As is, where is"; blue prints, photographs, etc. available. Inspection invited. Offer subject to prior sale. Write: TENNESSEE BREWING CO., 11 WEST BUTLER AVE., MEMPHIS, TENN. (Telephone 5-1452).

No. 852 STEEL SIDE-DUMPING HOPPER TRUCK. Side gate hinged on bottom extends to dump load away from running gear. Wheels remain on ground when body is tipped. Body is 36" wide, 60" long, 18" deep. Fifth-wheel steer and turning yolk for power unit towing.



No. 833 TOWVEYOR TRUCK. Reduces dispatching and sorting time in motor terminals and warehouses. Rigid all steel, all-welded frame with hardwood platform. Plastic or rubber tired wheels. Grease seals available. Clip board for instruction sheets, messages. Box for trip or inventory cards.

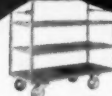


No. 855 FIFTH-WHEEL STEER TRAILER TRUCK. Rigid all-steel, all-welded frame with hardwood platform. 48" wide x 96" long. Equipped with dual 16" wheels, 4.00 x 8 six ply heavy duty pneumatic tires.

TOWSLEY

TASK TAILORED GENERAL and SPECIAL FLOOR TRUCKS

The trucks you see can be adapted to many uses. We have many more economical general purpose trucks to choose from and top flight engineers to develop new ones for your special job. If you have a unique handling condition that requires special planning, write or phone Towsley first.



No. 509 MANY PURPOSE SHELF TRUCK. All-welded, steel construction. Pipe push handles at both ends. Furnished with 3, 4, or 5 shelves. 12" or 15" space between shelves.

No. 200 GENERAL PURPOSE PLATFORM TRUCK. All-welded, steel construction. Platform available in steel or 1" hardwood stock. Level type wheel mounting. Accommodates a variety of end racks at each end.



No. 900 SEMI-LIVE SKID with KUM-A-LONG JACK. Ideal for receiving, shipping, storage and progressive assembly lines. Provides maximum materials mobility. KUM-A-LONG JACK pivots in a minimum radius. All steel or 1 3/8" hardwood deck.



TOWSLEY TRUCKS, INC.

1778 ELMORE ST.
CINCINNATI 22, OHIO

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Deluxe built-in FEATURES CUT INSTALLATION EXPENSE by 50%

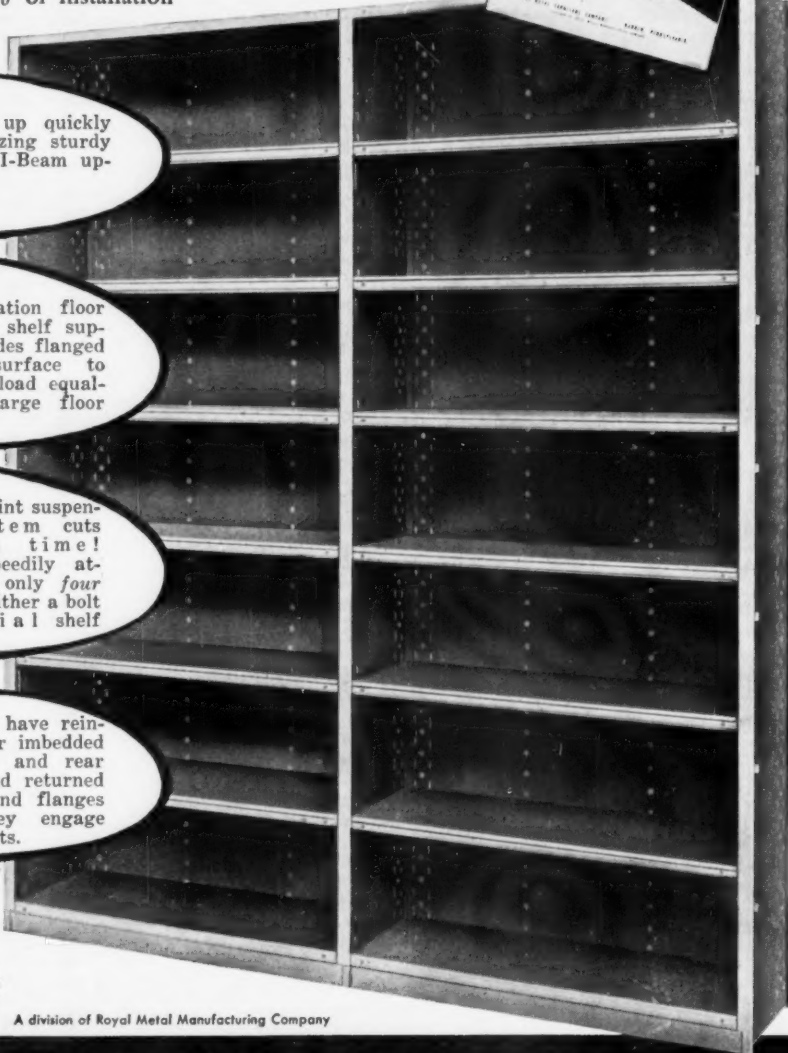
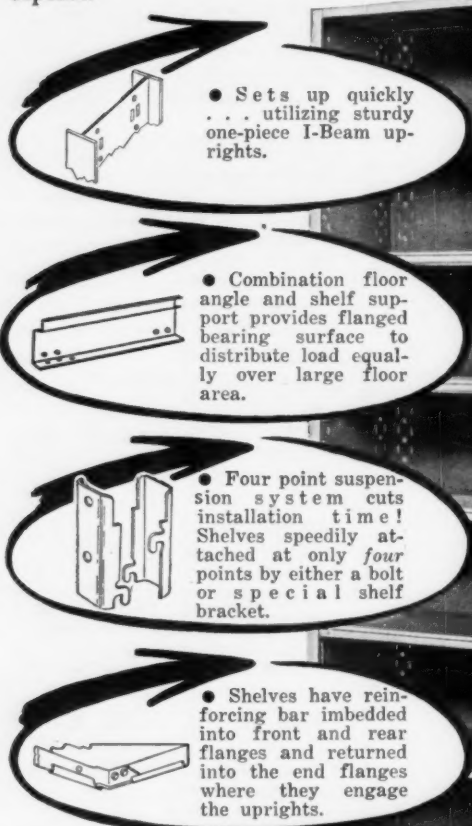
By built-in features we mean the components of **Deluxe** steel shelving are made at our factory. This permits easy assembly without the tedious, time-consuming jobs found necessary in assembling ordinary shelving.

Your **Deluxe** dealer and our design engineering and estimating department, without obligation, will be pleased to work up an installation to fit your requirement—and show you how you can save 50% of installation expense.

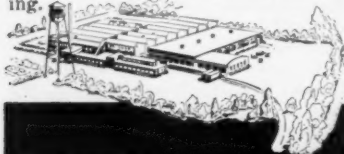
FREE

48 PAGE CATALOG

Here is the **Deluxe** craftsmanship story . . . told in this 48-page fully illustrated catalog. Request your free copy.



For over 25 years our plant has been particularly devoted to the mass production of quality shelving.



A division of Royal Metal Manufacturing Company

DELUXE METAL FURNITURE CO.

335

STRUTHERS STREET, WARREN, PENNSYLVANIA

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82%

**of America's
100 Largest Companies*
use Magliner Dock Boards!**

Yes, eighty-two of America's one-hundred largest industrial companies use Magliner magnesium dock boards! These are the companies who annually invest millions of dollars—and investigate thousands of products—to improve materials handling and reduce costs. Experienced materials handling specialists at these companies have just one responsibility . . . *procure the type of equipment that will do the job best—at the lowest possible cost!* The dock boards they buy are selected after comparing all available equipment—and *only* after a thorough analysis of performance, service-life, safety and long-term cost.

Why do more than 8 out of 10 buy Magliners? Here are some of the reasons behind Big Industry's vote of confidence—reasons you will want to consider before you buy!

America's industrial giants prefer Magliner magnesium dock boards because with them, they get *more* out of power trucks and other loading equipment . . . *more* and faster loading cycles . . . *more* loads moved in less time. Result: output up, costs down! These companies found that Magliners protect loads and equipment against costly damage . . . insure against accidents and personnel injury. Made of magnesium, lightest structural metal in the world, they're easily handled by one man. No heavy lifting—no risk of injury. Magliners are low in initial cost—and because they provide dependable, long-life service with less maintenance—they give you greater economy *all* ways!

Materials handling men at these companies will also tell

you—*Magliner performance is planned performance!* Before each company bought, an experienced Magline field engineer personally inspected the loading operation. Result: lightweight, heavy-duty Magliner dock boards *job-engineered* for high volume, low cost shipping and receiving! No wonder 8 out of 10 of America's largest concerns *use and continue to specify* Magliner dock boards!

Whether you use one dock board or hundreds, you too will find that Magliner is the *right* dock board for you! Write today for Bulletin DB-204 and the name of the Magline representative in your area!



*Source: U. S. Department of Commerce Statistics

Manufacturers of MAGNESIUM Perma-Docks • Mobile Loading Ramps
Hand Trucks • Floor Trucks • Roller Conveyors • Barrel Skids • Bridges
Catwalks • Special Handling Equipment

SEND YOUR NAME AND ADDRESS FOR YOUR COPY OF BULLETIN DB-204! MAGLINE, INC., BOX 211, PINCONNING, MICH.

In Canada: Magline of Canada, Ltd., Renfrew, Ontario

Circle No. 122 on Reader Service Card for more information

**WHEN
THE JOB
IS
RUGGED**



Goodyear Industrial Tires Deliver the Goods

MAJOR reason you'll find more and more Goodyear Industrial Tires specified as original equipment—and more of them specified on reorders—is because Goodyears are job-fitted for better performance.

If your job causes tires to cut or chip too fast, our skilled technical experts or your Goodyear dealer will recommend the rugged Red Seal compound. On oily surfaces, they'll suggest the oil-resistant Yellow Seal compound.

If your trucks need extra traction, we will recommend the All-Weather Tread from our four Goodyear-developed treads.

In short, Goodyear Industrial Tires do more than fit the truck—they fit the job. And the pay-off for you is longer tire life at lower cost. Check your Goodyear dealer for all the facts today or write:

Goodyear, Industrial Tire Sales, Akron 16, Ohio

USE THE RIGHT TIRE FOR THE JOB—BUY AND SPECIFY

GOODYEAR
INDUSTRIAL TIRES

SMOOTH-SOLID—
for factory, warehouse and
loading platform

GROOVE TREAD SOLID—
built to take heavy punishment
on big trucks

ALL-WEATHER TREAD—
for ramps, wet surfaces and
other extra-traction conditions

**ALL-SERVICE TREAD XTRA
CUSHION—**
built with compact lug design
for fast easy rolling with
absolute smoothness and
stability



Look for this sign; there's a
Goodyear dealer near you



All-Service, All-Weather, Xtra Cushion
—T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio